UNIVERSIDAD AUTONOMA DE MADRID

FACULTAD DE PSICOLOGÍA
Programa de Doctorado: Ciencia de la Conducta
Departamento: Psicología Biológica y de la Salud

TESIS DOCTORAL

PROMOCIÓN DEL ENVEJECIMIENTO ACTIVO EN MÉXICO: "Vivir con Vitalidad"

Presenta: *Neyda Ma. Mendoza Ruvalcaba*

Directora: *Dra. Rocío Fernández Ballesteros*

Madrid, España. Junio de 2017

PROMOCIÓN DEL ENVEJECIMIENTO ACTIVO EN MÉXICO: "Vivir con Vitalidad"

Presenta: *Neyda Ma. Mendoza Ruvalcaba*

Directora: *Dra. Rocío Fernández Ballesteros*

FACULTAD DE PSICOLOGÍA
Programa de Doctorado: Ciencia de la Conducta
Departamento: Psicología Biológica y de la Salud

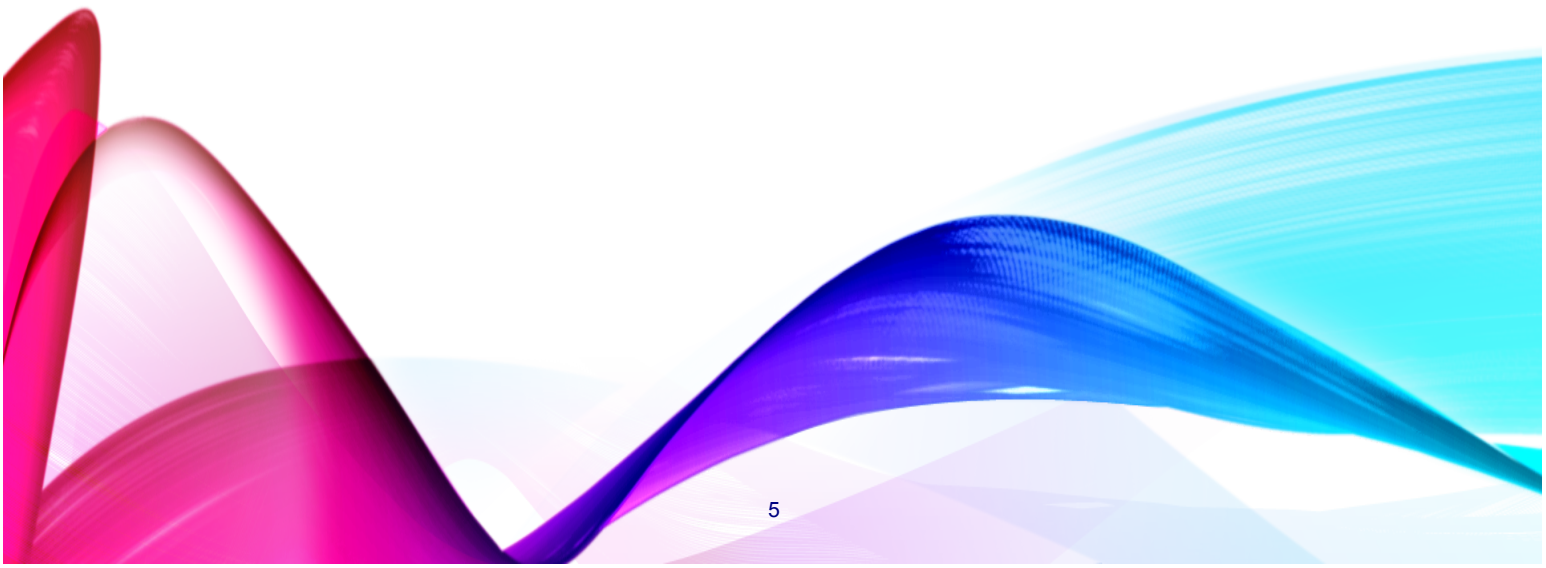
Madrid, España. Junio de 2017

Dedicatoria:

A Neyda Sofía y Patricio

Índice

1. Introducción



1. Introducción

El acelerado, inminente e irreversible envejecimiento poblacional representa un éxito de las políticas de salud pública, al mismo tiempo que impone grandes desafíos.

El principal reto es el mantenimiento de la salud, y en contraparte, la evitación de la enfermedad y la discapacidad asociada a la vejez, por los altos costos que ésta supone para el estado, la comunidad, las familias y los individuos en particular.

En las últimas décadas, el estudio del envejecimiento humano se ha desarrollado desde un enfoque positivo, centrado en el potencial y en la mejora de la calidad de vida en la vejez. Denominado como “envejecimiento activo”, “exitoso”, “saludable”, “óptimo”, “positivo”, “buen envejecer” (entre otros), este concepto de envejecimiento supone una transición desde la noción de que el envejecimiento está caracterizado por la dependencia, fragilidad y decrepitud, hacia una noción en la que las personas tienen el potencial y las capacidades para, a pesar de los declives, seguir contribuyendo activamente en la comunidad, mantenerse saludables y con una buena calidad de vida a medida que se envejece.

Desde una aproximación política, se ha promovido al envejecimiento activo como la clave para hacer del envejecimiento una experiencia positiva, acompañado de oportunidades continuas de salud, participación y seguridad (OMS, 2002), así mismo, se ha planteado como una estrategia política clave, que vincula los principales dominios políticos del empleo, las pensiones, el retiro, la salud y la solidaridad, como elementos necesarios para enfrentar los retos del envejecimiento poblacional (Walker, 2002).

Desde un enfoque científico, importantes académicos como Havighurst (1961, 1963), Fries y Crapo (1981), Baltes y Baltes (1990), Atchley (1989), Ryff (1982, 1989), Rowe & Khan (1998), y Fernandez-Ballesteros (2002a) han contribuido con estudios empíricos que suponen grandes avances en el desarrollo de la noción del envejecimiento activo; así como han señalado la importancia de las contribuciones que las personas mayores ofrecen a la sociedad.

Este documento compila contribuciones científicas realizadas en torno al tema del envejecimiento activo, incluye documentos teóricos y empíricos, situados concretamente en el contexto de las personas mayores mexicanas.

Esta tesis, se presenta bajo la modalidad de titulación por artículos, para ello se han incluido un total de 6 publicaciones, dos de las cuales no pueden ser contabilizadas debido a que fueron publicadas con fecha anterior al registro del proyecto de tesis, sin embargo, se ha decidido su inclusión debido a que son evidencia del trabajo previo que se ha hecho en la línea de investigación, y además ilustran de manera muy pertinente aspectos centrales relacionados al tema de estudio de esta tesis.

La primera de ellas (Apartado 2.) hace un análisis de revisión conceptual del envejecimiento activo (Fernández-Ballesteros y Mendoza-Ruvalcaba, 2010). Mientras que la segunda publicación (Apartado 3.2), deriva de un estudio transcultural donde se describen las condiciones de calidad de vida de personas mayores mexicanas en comparación con mayores españolas (Fernández-Ballesteros, Arias Merino, Santacreu, y Mendoza Ruvalcaba, 2010), este estudio formó parte del Proyecto CASOENAC (Cambio Sociodemográfico y Envejecimiento Activo) apoyado el fondo FONCICYT-CONACYT, en una colaboración conjunta con la Universidad de Guadalajara (México) y la Universidad Autónoma de Madrid (España).

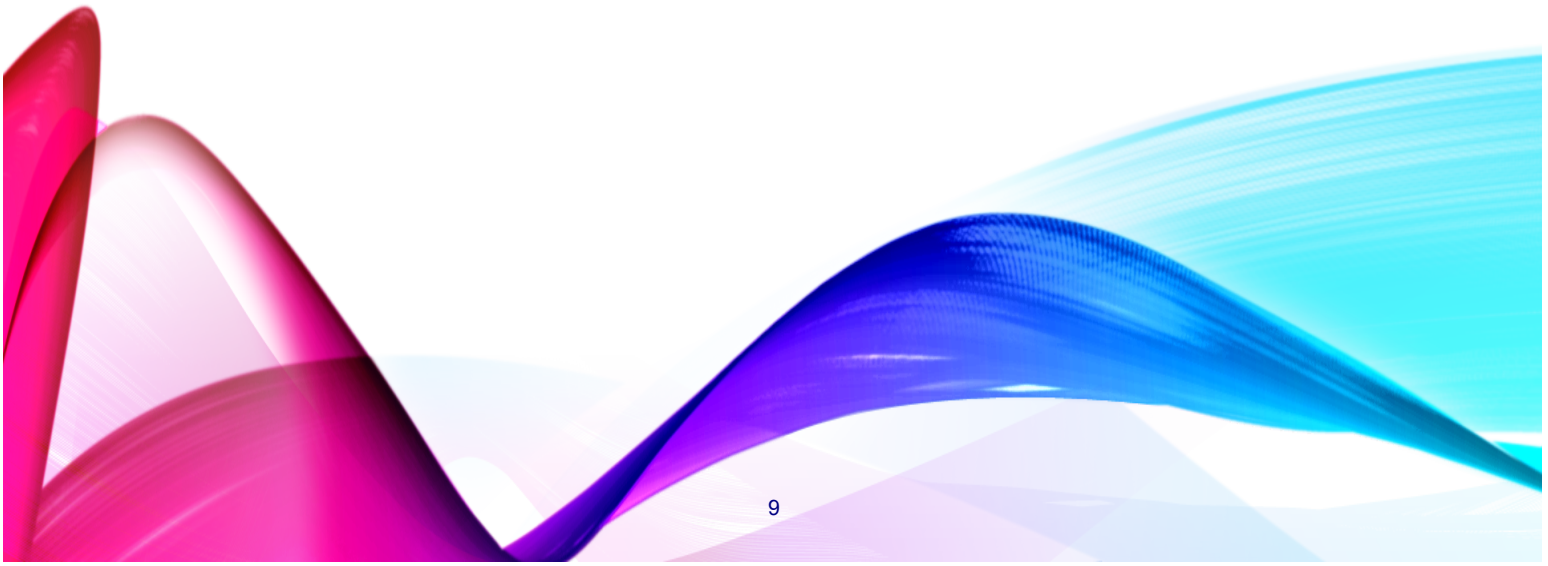
De las 4 publicaciones contabilizadas para titulación, 3 son artículos originales y 1 es un capítulo de libro. Una publicación deriva de un estudio de base poblacional, dos publicaciones reportan resultados de dos proyectos de intervención, y se incluye además una revisión de la literatura.

1. El primer artículo original: “Prevalencia del envejecimiento exitoso en el Occidente de México” (*Prevalence of Successful Aging in the Elderly in Western Mexico),* analiza la prevalencia de envejecimiento activo y sus factores asociados en mayores Mexicanos (Arias Merino, Mendoza Ruvalcaba, Arias Merino, Cueva Contreras y Vázquez Arias, 2012). Es

resultado del Proyecto "Salud, Bienestar y Envejecimiento" (SABE) realizado en los estados de Jalisco y Colima (México), promovido por la Organización Panamericana de Salud (OPS) con la finalidad de evaluar el estado de salud de las personas mayores en Región de las Américas, así como proyectar las necesidades que resulten del rápido crecimiento de la población mayor en esta región.

2. La segunda publicación, es un capítulo de libro titulado "Promoción del envejecimiento exitoso. Una perspectiva Psicosocial" (*Promoting Successful Aging. A Psychosocial perspective)* donde se lleva a cabo una revisión de la literatura para analizar programas de promoción de envejecimiento activo (Caprara y Mendoza-Ruvalcaba, en prensa); este documento se encuentra aún en prensa, y será publicado como parte de *The Cambdridge Handbook of Successful Aging* (Fernández-Ballesteros, Robine y Benethos, Eds*.,* en prensa).
3. La tercer publicación es un artículo original, en el cual se analiza la eficacia de un programa de intervención denominado "Soy Activo", este programa fue diseñado, gestionado, implementado y evaluado especialmente para promover el envejecimiento activo en personas mayores. Se involucraron un grupo experimental y uno control, se llevó a cabo un estudio experimental con un seguimiento a seis meses. Los resultados analizan la eficacia de la intervención (Mendoza-Ruvalcaba y Arias-Merino, 2015).
4. Finalmente, la cuarta publicación es considerada la más importante en este proyecto de tesis. Este artículo original, es un estudio cuasi-experimental en el cual se analiza la eficacia del programa "Vivir con Vitalidad" (adaptado al contexto del original de Fernández-Ballesteros, 2002). Este programa desarrollado y aplicado en la Universidad Autónoma de Madrid fue originalmente diseñado para población española. Para este estudio, el programa fue adaptado para población mayor mexicana, y aplicado para comprobar sus efectos. Los resultados apuntan a que el programa puede ser considerado como una herramienta transcultural, útil para la promoción del envejecimiento exitoso.

2. Revisión del concepto de “envejecimiento activo”



2. Revisión del Concepto de Envejecimiento Activo

Ante un panorama de inminente envejecimiento poblacional, los expertos han enfocado el estudio del envejecimiento desde otra perspectiva, y no solo basado en las connotaciones negativas y patológicas asociadas a este proceso.

Es así como en las últimas décadas del Siglo XX surge el llamado nuevo paradigma que revolucionó la gerontología y los estudios en el envejecimiento con una perspectiva positiva, denominado como envejecimiento “activo”, “exitoso”, “positivo”, “envejecer bien”.

Los pioneros de este nuevo paradigma se ubican desde los años 60´s con Havighurst (1961) quien propuso el concepto basado en la Teoría de la Actividad. Y fue posteriormente cuando tuvo su mayor impulso con influyentes autores como Rowe y Kahn (1997, 1998), Fries y Crapo (1981), Baltes yBaltes (1990), Atchley (1989), Ryff (1982, 1989), and Fernandez-Ballesteros (2002a), quienes con estudios empíricos contribuyeron de manera importante con el desarrollo de esta aproximación al envejecimiento.

2.1 CAPÍTULO DE LIBRO:

Hacia una definición de envejecimiento exitoso

Referencia:
Fernández Ballesteros, R., Mendoza Ruvalcaba, N.M. (2010). Toward a definition of successful aging. In Kruse (Ed.) *Leben im Alter – Eigen- und Mitverantwortlichkeit aus der Perspektive von Gesellschaft, Kultur und Politik.* Heidelberg: Akademische Verlagsgesellschaft.

El capítulo de libro que se presenta a continuación (como un trabajo previo que expresa la preparación de la presente Tesis Doctoral), forma parte de una obra editada en conmemoración del 80 aniversario de natalicio de la Prof. Ursula Lehr, considerada una académica y científica comprometida con la causa de reivindicar el envejecimiento desde un enfoque positivo; al que fue invitada la Prof. Fernández-Ballesteros, quien solicitó mi colaboración en el capítulo. El titulo del libro es “La vida en la vejez - la equidad y la responsabilidad compartida desde la perspectiva de la sociedad, la cultura y la política” (*Leben im Alter – Eigen- und Mitverantwortlichkeit aus der Perspektive von Gesellschaft, Kultur und Politik)*.

En este capítulo, se hace un análisis del concepto, las definiciones operacionales, prevalencia y predictores del envejecimiento activo. Los principales hallazgos señalan una falta de consenso, que sigue estando vigente, marcada por puntos de acuerdo como que es un concepto necesariamente multidimensional, que debe tomar en cuenta no solamente el punto de vista de los expertos sino también el concepto implícito de las personas mayores. Dominios como la independencia funcional, el estado de salud, funcionamiento cognitivo y la satisfacción con la vida son coincidentes en la mayoría de las definiciones. Por su parte los predictores mas poderosos son los sociodemográficos (edad, sexo, escolaridad y renta), el estilo de vida, la personalidad, inteligencia y la existencia de patologías. Finalmente el envejecimiento activo es considerado resultado del ciclo vital.

Leben im Alter
A. Kruse (Hrsg.)

Vielen herzlichen Dank!
Ihre Lehr
28.11.2011

Toward a Definition of "Successful" Ageing

Rocío FERNÁNDEZ-BALLESTEROS[a] und Neyda Ma. MENDOZA-RUVALCABA[b]
[a]*Autonomous University of Madrid, Spain*
[b]*Guadalajara University, Mexico*

Abstract. Anhand diverser empirischer Studien, welche von den Autoren in Mexiko und Spanien durchgeführt wurden, wird postuliert, dass nur ein Mix aus vier multi-domain-Definitionen und weiteren singulären Befunden ein vollständiges Bild der Multidimensionalität des modernen successful ageing-Begriffs leisten könne. Obwohl derzeit noch das Dilemma bestehe, dass ein Konsens über die Kriterien dessen, was der Begriff des successful ageing umfasse, noch nicht abgeschlossen sei, so habe man mittlerweile jedoch Einigkeit über einige definitorische Aspekte erzielt. Als zentraler Befund könne dabei gelten, dass successful ageing als das Ergebnis eines lebenslangen Prozesses zu betrachten sei, in dem sowohl private Handlungsstrategien und Lebensstile als auch öffentlich bereitgestellte Handlungsspielräume und Entwicklungsmöglichkeiten zu berücksichtigen seien.

Introduction

An ageing population is the expression of human success in the process of adaptation. As a social phenomenon an ageing population is a challenge because it can be considered by society both as a threat and as an opportunity: a threat, because age is associated with illness, dependency and suffering and, therefore, from a welfare state perspective, an ageing society requires high investment in older people's care; a new bio-psycho-social phenomenon (as population ageing is), however, also provides a great opportunity to society.

How to *live longer, live active* is a challenge which occurs at the level of society but also at individual level; society must promote socio-environmental conditions for active ageing across the lifespan because older people represent human capital (e.g. Kruse, 2002). Also, at the individual level, the elderly must be aware that ageing well is not a random event but that they are the agents of their own ageing process which involves not only decline but also opportunities for development.

Prof. Ursula Lehr is a scientist and academic but also committed to the cause of reconsidering ageing from a positive perspective and opening the eyes of scientists, policymakers, and the elderly to this new perspective. This is why we have selected the topic of *successful ageing* as the best way to honour her on her eightieth birthday.

1. Some Antecedents

Early in the 1960s, Havighurst saw the need for a theory of successful ageing, defined as the individual and social life conditions under which a person gets a maximum of

satisfaction and happiness and society maintains an appropriate balance of satisfaction among the various social groups. In order to treat this question he fronted what he called *two theories of successful ageing*: the Activity Theory and the Disengagement Theory. The former held that successful ageing means the maintenance as far and as long as possible of activities and attitudes of middle age; the latter asserted that successful ageing means the acceptance of and the desire for a process of disengagement from active life.

Havighurst (1960) was the first author to call for research in successful ageing:

> "One of the major aims of gerontology is to provide society and individuals with advice on the making of societal and individual choices about such things as retirement policy, social security policy, housing, where and with whom to live, how to relate oneself to one's family, what to do in free time. In order to provide good advice, it is essential that gerontology has a theory of successful aging" (p.8).

Although the initiative did not attract much response at this time, the seed was sown that ageing is not only a series of unavoidable progressive changes leading to greater limitations and physical impairments (a concept widely accepted from a biomedical point of view), but a process of human development where change is combined with stability, development of new resources (physical, cognitive, psychological and social), and functional decline as well.

As Fernández-Ballesteros observed, from an evidence-based point of view, it was only during the last three decades of the twentieth century that the so-called "new paradigm" or "revolution" in the field of ageing research and, in a broad sense, the science of gerontology began: a positive view. Pioneers of this new paradigm come from several gerontological disciplines; that is, from the fields of biomedicine and social sciences (Fries, 1989; Rowe & Khan, 1987) or from psychology (Thomae, 1975; Lehr, 1993; Baltes & Baltes, 1990).

This new perspective of ageing and this new concept "ageing well" have not only remained as an issue on scientific and academic agendas. This positive perspective on the study of ageing has spread through political actions conducted by international organisations. The United Nations celebrated the First World Assembly on Ageing in Vienna in 1982 and the Second World Assembly on Ageing convened in Madrid in 2002, developing and approving two International Plans of Action on Ageing. Both contained guiding principles for policies, planning and programming to improve positive ageing, by recognising resources and potential as well as regulating the care of older persons.

In addition, the World Health Organization (WHO, 1990), in the report "Healthy aging", emphasises the negative influence of stereotyping, which reduces ageing to illness in the care of the elderly, as well as the importance of promoting health throughout the lifecycle. Also, the World Health Organization (1999) outlined principles of *Active Ageing* pointing out how they help to maintain health throughout the lifespan and specially in later years, and suggested ways in which individuals and policymakers can turn principles into practice to make active ageing a global reality.

The theme of World Health Day 1999 in the International Year of Older Persons, "Active Ageing makes the difference", recognises that it is crucial for older people to go on playing a part in society. WHO also expressed its commitment to promoting successful ageing as an indispensable component of all development programmes. Finally, as a preparation for the Second World Assembly on Ageing, the World Health Organization (2002) enlarged the concept of healthy ageing, calling this new view

Active ageing and defining it as "the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age" (p.14).
As Fernández-Ballesteros (2008) pointed out, the same positive concept is called differently by different authors: "healthy" (WHO, 1990), "successful" (Thomae, 1975; Rowe & Khan, 1987, 1997; Baltes & Baltes, 1990), "active" (WHO, 2002), and many others such as "optimal" (Palmore, 1995), "vital" (Erikson et al., 1986), "productive" (Butler & Gleason, 1985; Kruse, 2002), "positive" (Gergen & Gergen, 2001) or simply "aging well" (Fries, 1989) or "good life" (Bearon, 1996).

After reviewing their use in several bibliographical data bases (Psychlit, Pubmed, Sociofile), Fernández-Ballesteros concluded that all these terms have been growing since the seventies in all scientific data bases examined. Also, it seems that the terms are linked to a concrete scientific field: "healthy" ageing is a consolidated verbal label within the bio-medical context but has been declining in the last decade; "successful" ageing is the most extended term on psychological and social literature and "active" ageing appears in most of the data bases of the last decade, congruent with the fact that "active ageing" has been endorsed by the WHO (2002). Finally, other terms such as "optimal" or "productive" have a very small presence in scientific literature. Since "successful ageing" is the commonest term in psycho-social literature and perhaps is also used in bio-medical research we have kept this concept.

2. Tell me how you define successful ageing and I will tell you how many "successful agers" there are

Usually, successful ageing is considered a multidimensional concept, described by a broad set of bio-psycho-social factors (Fries, 1989; Rowe & Khan, 1987; Thomae, 1975). Nevertheless, frequently research in this field reduces successful ageing to daily life functioning and physical health, that is, to "healthy" ageing or to life satisfaction ('satisfactory' ageing), as Havighurst (1960) did. In other words, there is no consensus about its operationalisation.

As is well known, when a new concept is developed and is used in scientific literature its empirical definition is a pre-requisite for its use even when only developed for classification purposes. How many older persons in a given population are "ageing well" is a relevant question. Several scientific studies around the world have been devoted to testing a particular conceptual definition of successful ageing, as well as to determine its prevalence in a given population.

We conducted a review of scientific indexes (PubMed and ISI Web of Knowledge), as well as the data bases EBSCO, SciELO and REDALYC, searching for empirical studies using the terms "successful", "healthy" and "active" ageing, from January 1979 to December 2008. Seventeen empirical definitions were found under the inclusion criteria with an explicit definition (therefore, studies with no operational definition were excluded). Table 1 shows a summary of data found in the literature search for those empirical cross-sectional or longitudinal studies by author, concept used, main outcome definitions, criteria and the proportion of individuals meeting the criteria.

Table 1. Author's definitions of successful ageing, criteria used, and rate of successful ageing participants found.

Author	Concept	Outcomes definitions	Criteria	% Successful ageing
(Havighurst, 1960)	*"Successful Aging"*	Life satisfaction (past and present).	Life satisfaction.	not specified
(Palmore, 1979)	*"Successful Aging"*	Longevity, without disability, and happiness (life satisfaction).	80 years and older. Independence in ADL's. Life satisfaction.	not specified
(Guralnik & Kaplan, 1989)	*"Healthy Aging"*	High level of physical functioning.	Top 20% in ADL's.	12.7%
(Ross & Havens, 1991)	*"Successful Aging"*	Maintaining independence in the community by living to advanced age, continuing to function well at home and remaining mentally alert. Good self-rated health.	Independence in ADL's, life. Satisfaction. Good self-rated health. No-cognitive impairment (MMSE>24).	20%
(Berkman et al., 1993)	*"Successful Aging"*	High level of functioning.	Being in the upper tertile of both cognitive and physical functioning (percentile 33 in MMSE and ADL's).	32.6%
(Strawbridge, Cohen, Sheman, & Kaplan, 1996)	*"Successful Aging"*	To have minimal interruption of usual functioning, needing no assistance nor having difficulty on a range of activity/mobility measures and little or no difficulty on measures of physical performance.	Independence in ADL's.	35%
(Rowe & Kahn, 1997)	*"Successful Aging"*	Includes avoidance of disease and disability, the maintenance of high physical and cognitive function, and sustained engagement in social and productive activities.	No-disease. Independence in ADL's. Cognitive function (MMSE>24). Active (participation scale).	not specified
(Jorm et al., 1998)	*"Successful Aging"*	Functioning in the community without disability, with excellent or good self-rated health and high cognitive ability.	Independence in ADL's. Self-rated health. No-cognitive impairment.	6% – 44%
(Reed et al., 1998)	*"Healthy Aging"*	Surviving and remaining free of major chronic illness and physical and cognitive impairments.	70 years and older. Independence in ADL's. No-cognitive impairment. No heart disease.	19%

			No cancer. No lung disease. No diabetes disease. No Parkinson.	
(Avlund, Holstein, Mortensen, & Schroll, 1999)	*"Successful Aging"*	Defined in terms of Active Life Classification, in which criterion for successful aging combines good functional ability and high social participation.	Independence in ADL's. Social participation.	Men 23% Women 22%
(Ford et al., 2000)	*"Successful Aging"*	Sustained personal autonomy in domains of activities of daily living, ability to participate in valuated activities and not living in a nursing home.	Independence in ADL's. Not living in a nursing home.	20%
(Burke et al., 2001)	*"Healthy Aging"*	Remaining alive and free of chronic disease and symptoms in later life.	72 years and older. No heart disease. No cancer. No lung disease.	Men 59% Women 71%
(Vaillant & Mukamal, 2001)	*"Successful Aging"*	High level of well-being: objective and subjective physical health, mental health, active life, life satisfaction, social support.	Physical health. Independence in ADL's. Good self-rated health. Being active. Social support. No-cognitive impairment (MMSE>24).	26% – 29%
(VonFaber et al., 2001)	*"Successful Aging"*	Optimal state of overall functioning and well-being.	Percentile 33 in MMSE, ADL's, activities. No-loneliness feelings. Well-being feelings.	10%
(World Health Organization, 2002)	*"Active Ageing"*	Is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age, applies to both individuals and population groups.	not specified	not specified
(Newman et al., 2003)	*"Successful Aging"*	Reaching old age without having experienced serious chronic illness and having maintained high levels of physical and cognitive functioning.	No heart disease. No cancer. No lung disease. Independence in ADL's. No-cognitive impairment.	not specified
(Britton, Shipley, Singh-Manoux, & Marmot, 2008)	*"Successful Aging"*	Being free of major disease and in the top tertile of the distribution of physical and cognitive functioning.	No-disease. In the top tertile of ADL's and MMSE.	not specified

Source: (Mendoza-Ruvalcaba & Arias-Merino, 2010).

As it is shown, results from these studies yielded a remarkable diversity in the criteria defining successful ageing and related terms. Therefore, it derives a broad diversity of elder people fulfilling the established criteria or being considered as successful aging participants (6 percent through 59 percent).

Our results are in accordance with those of Peel, Barttlett and McClure (2004), who reviewed eighteen studies reporting results of longitudinal research (1985–2003). They found that the proportion of successful ageing individuals reported in these studies varied greatly – from 3 percent to 80 percent. Among the criteria, the authors concluded that survival and level of functioning were those most used for identifying successful ageing. Also, Deep and Jeste (2006) reviewed the variability in definitions of successful ageing and rates of successful ageing reported in several studies. They identified 29 definitions where the mean proportion of elderly meeting the criteria for successful ageing was 35.8 percent, and the range varied from 0.4 percent to 95 percent. Ten main domains were used as criteria for defining successful ageing: disability and physical functioning, cognitive functioning, life satisfaction and well-being, social/productive engagement, presence of illness, longevity, self-rated health, personality, environment and finances, and self-rated successful ageing. Finally, Peel and colleagues (2004) and Deep and Jeste (2006) attributed to characteristics of each study (sample age, gender, education, etc.) the diversity of prevalence in successful ageing.

In sum, it can be concluded that there is still a lack of consensus on the definition of successful ageing; taking into account the heterogeneous nature of definitions, domains, measures selected and populations sampled, it is impossible to arrive at reliable prevalences.

3. Outcomes and predictors of successful ageing: new evidence

Given the diversity of empirical definitions in successful ageing research, a variety of predictor variables can also be expected. For example, Depp and Jeste (2006) pointed out that the commonest predictors of successful ageing criteria were younger age, higher income, education, gender/female, gender/male, C-reactive protein, ankle/arm index, presence of medical conditions, hearing problems, and presence of depression. It should be noted that "illness", which is one of the domains of dependent variables, is also included as an independent or predictor variable. This (and other) methodological confusions make any distinction between successful ageing outcomes and their predictors (or determinants) circular or tautological (see also Fernández-Ballesteros et al., 2004). In sum, when data from cross-sectional studies on successful ageing are analysed, several variables are used inappropriately, at the same time, both as dependent or outcome variables and as independent or predictor variables.

In order to examine prevalence of different definitions of successful ageing looking for their predictors, making distinctions between outcomes and predictors, let us introduce two independent studies from two cultural settings: Spain and Mexico.

Fernández-Ballesteros and colleagues (in press) examined whether specific *multi-domain* criteria or *specific* outcomes related to successful ageing yielded different proportions of successful ageing participants and what were their predictors. Data obtained from 458 elderly (170 males, 288 females) participants in the *baseline* of the *Estudio Longitudinal sobre Envejecimiento Activo, ELEA* (Longitudinal Study on Active Ageing) were examined. Mean age of participants was 66.7 years (range: 55–75), 5.3 were single, 70.5 percent married, 7.2 percent divorced, and 17.1 percent

widow/ers. Concerning education, 21 percent had no formal education (but were literate), 41 percent primary education, 14 percent secondary education, 11.6 percent high school, 12 percent college. Regarding working status, 53.3 percent were retired, 10 percent still working, and 33.3 percent were housewives. Criteria for inclusion were to have all basic ADL and having more than 24 on the MMSE (Folstein, Folstein & McHugh, 1975).

After the interviewer received informed consent, participants were tested at home, in senior centres, or at university, through the *Protocolo de Evaluación del Envejecimiento Activo* (PELEA), developed from the *European Survey on Ageing Protocol* (*ESAP)* already tested through EXCELSA (Cross-European on Ageing Longitudinal Study, Fernández-Ballesteros et al., 2004). The PELEA contains 500 variables, assessing 23 functions, and is grouped into nine domains: anthropometry (e.g. height, weight, BMI, etc.); health and functioning (e.g. subjective health, number of diagnosed illnesses, sensory functions, need for help, etc.); physical and physiological functions (e.g. blood pressure, balance, speed, vital capacity, strength, subjective fitness); lifestyle (e.g. physical activity, nutrition, smoking, drinking, etc.); cognitive functioning (e.g. working memory, cognitive plasticity, learning, mental status); emotional-motivation functioning (e.g. life satisfaction, well-being, emotional regulation, self-efficacy for ageing); personality (extroversion, neuroticism, openness, agreeableness, conscientiousness); social functioning and participation (social and family network and support, helping others, receiving care, leisure activities, social productivity); and socio-demographics (age, gender, marital status, education, income, etc.).

The authors posited four "multi-domain" definitions of successful ageing as well as "simple" outcomes present in most successful ageing studies (subjective health, number of illnesses reported, mental status, and life satisfaction), and performed a set of stepwise regression analyses for simple outcomes as well as logistic analysis for categorical multidimensional measures of successful ageing (see Fernández-Ballesteros et al., in press).

Regarding prevalence of successful ageing persons, the range ran from 93 percent with the criterion of 'no help needed' (obviously in accordance with our criteria for inclusion in the study) to 15.5 percent when a multidimensional definition number of four based on Productivity was used (mean = 45.3 percent). In general terms, those multidimensional definitions were more restrictive (ranging from 41.4 percent to 15.5 percent) than the simple definitions (ranging from 93 percent to 27.9 percent), and those objective definitions more restrictive than the subjective ones (ranging from 27.9 percent – no illness – to 80 percent – high life satisfaction).

Regarding predictors, the most powerful predictors across domains were *socio-demographics*: gender, income, education and age (according to our age range 55–75). In second place two *lifestyles* such as usually drinking and physical activity are also across-domain predictors and strength and peak flow (physical fitness) could also be considered as *physical fitness* predictors. Third, it is important to emphasise that *intelligence* (assessed through Digit Symbols) is the commonest predictor for all our criteria, both those criteria including cognitive functioning (all multidimensional criteria) and all the others. In the fourth place, *personality* conditions such as neuroticism, extraversion, emotional balance, openness, and self-efficacy for ageing are predictors of some of our criteria. Finally, among those *psychosocial* variables theoretically linked with successful ageing only family network and helping others yielded significant weight in our regression equations.

We must take into consideration that ELEA is planned as a longitudinal study in order to arrive at a definition of successful ageing as well as the identification of successful ageing determinants, and therefore our results are cross-sectional, coming from the baseline of ELEA. Moreover, it must be said that in our study *90+* we had already tested the predictive value of our successful ageing definitions (Fernández-Ballesteros et al., 2009).

A second study was conducted by Mendoza-Ruvalcaba and Arias-Merino (2010), the aim of which was to examine the variation in proportion and predictors of successful ageing when different criteria proposed in the literature were applied to the same population.

This study analysed empirical definitions and indicators for successful ageing proposed by several authors, establishing the prevalence of successfully ageing elders according to the criteria included in each definition, and identifying predictors of successful ageing for each different definition.

Data were obtained from the study *Mujeres Grandes* ('Great Women') carried out in Guadalajara (Jalisco, Mexico), where 638 elderly women who had previously given informed consent were interviewed and assessed on: cognitive function measured by MMSE (Folstein et al., 1975), depression assessed by the Geriatric Depression Scale (Yesavage et al., 1983), functional ability (basic and instrumental activities of daily living) measured by the Barthel Index (Mahoney & Barthel, 1965) and the Lawton Scale (Lawton & Brody, 1969) respectively, self-reported health, life satisfaction (self-report), nutritional risk by Nutritional Risk Screening (Kondrup, Rasmussen, Hamberg & Stanga, 2003), activities by the Activities Scale (Diez-Nicolás, 1996), and sociodemographics (age, education, marital status, income, living arrangements, etc.).

The mean age of participants was 70.9 years (SD=7.1, range 60–95), mean of education was 4.4 years, 89.2 percent were able to read and write, 85.6 percent were housewives, 72.3 percent were without pensions, 68.2 percent had income lower than 156€, 20.1 percent were living alone. As regards marital status 48 percent were widows, 31.2 percent were married, 10.7 percent were single, and 3.6 percent were divorced. Criteria for inclusion were being women, 60 years and older, and attending a senior centre in Guadalajara city.

Once the definitions had been analysed and operationalised, participants were categorised as successfully ageing or not depending on the fulfilment of the specific criteria. Logistic regression analyses were also performed in order to identify predictors of successful ageing according to each definition included.

In this study we found that the range of successful aged women varied from 3.4 percent (multidimensional criteria) to 97.2 percent (life satisfaction criterion), mean proportion 33.6 percent. In order to analyse this variability, definitions were grouped by inclusion (or not) of the commonest criteria found to define successful ageing: functionality (ADL's independence), cognitive status (MMSE), with-without disease, and life satisfaction. When functionality was considered as a criterion in the definitions 29.9 percent met the criteria for successful ageing, and 67.4 percent did not when it was not included. If cognitive status was included, 54.6 percent met the criteria, and 21.4 percent did not, when definitions did not include it. When life satisfaction was considered a criterion for successful ageing 27.7 percent were classified as successful agers, whereas 37 percent did not when life satisfaction was not included in the definitions. The major variability was found with the "no-disease" criterion; 3 percent met the criteria when it was in the definitions, and 41.7 percent did not satisfy the criteria when it was not considered a criterion for defining successful ageing. These

prevalences evidence how some criteria constrain more the possibility of being characterised as a successful ager the "no-disease" criterion was the most restrictive.

Besides the variability in rate this study analysed predictors of successful ageing according to criteria set for each definition. In summary, the most consistent and powerful predictors found were: age, education (among sociodemographics); subjective health, activities of daily living, nutritional risk (among health and functionality); depression (among psychological factors); and doing leisure, participation and daily activities (among lifestyles).

Three important issues must be considered here. First, *Mujeres Grandes* is a cross-sectional study that included only women; therefore some differences (in percentages and predictors) could be owed to differential effects of ageing associated with gender. Second, education level is generally low in this population, and this has a direct impact on the prevalence of people meeting the criteria for successful ageing, because performance in measures of cognitive status, specifically in MMSE, is strongly associated with education; it means for example that only a few could meet the criterion MMSE≥29, not because of their mental status, but because of their educational level. Third, different scales as well as cut-off measures contribute even more to the variability in rates and predictors. For example, although the criterion "cognitive functioning" is generally measured by MMSE, some authors consider it as scoring ≥29 (e.g. Fernández-Ballesteros et al., in press) or >24 (e.g. Ross & Havens, 1991), being in the upper tertile (e.g. Berkman et al., 1993), or just not having cognitive impairment (cut-off in Mexico is 19/20). Thus, even more differences owing to the scales used can be expected when criteria are measured with different scales across studies. Despite these issues, however, this study demonstrates the problem caused by the lack of consensus in defining successful ageing, and underlines the necessity for unifying criteria.

Although in Mendoza-Ruvalcaba and Arias Merino's (2010) study nineteen definitions of sixteen different authors were included, here we only report those proposed by Fernández-Ballesteros and colleagues (in press).

Table 2 shows comparisons between the two studies (with the exception of the multidimensional "Productivity" criterion). It must be emphasised that criteria for inclusion and instruments used are only harmonised in approximately 40 percent of cases.

Table 2 shows multidimensional (1–4) and simple criteria (5–9) prevalences in the two studies. Given the differences in both samples (mainly in gender and education), the results yielded higher prevalences of successful ageing in ELEA than in *Mujeres Grandes* with the exception of two subjective simple indicators: 'subjective health' and "life satisfaction". In other words, although ELEA participants seem to be in the majority in terms of successfully ageing from a more "objective" perspective, there is a higher proportion of *Mujeres Grandes* participants reporting "subjectively" successful ageing. These results call for more reflection about the core of successful ageing and its measurement through objective and subjective multiple criteria.

Table 2. Multidimensional (1–4) and simple criteria (5–9): prevalence of successful ageing in ELEA and "Mujeres Grandes" studies.

CRITERIA	ELEA	"MUJERES GRANDES"
	% Successful ageing	% Successful ageing
(1) Illness ≤1, MMSE≥29, Independence in ADL's, Life satisfaction (high or very high).	27.9%	3.4%
(2) Subjective health (good or very good), MMSE≥29, Independence in ADL's, Life satisfaction (high or very high).	41.4%	12.5%
(3) Leisure activity >mean, MMSE≥29, Independence in ADL's, Life satisfaction (high or very high).	19.5%	9.2%
(4) Productivity >mean, MMSE≥29, Independence in ADL's, Life satisfaction (high or very high)	15.5%	Not specified.
(5) No illness reported	27.9%	22.7%
(6) No help needed	93%	71.5%
(7) Subjective health (good or very good)	57.2%	60.6%
(8) Mental Status (MMSE >28)	46%	18.3%
(9) Life satisfaction (high or very high)	80%	97.2%

Source: Fernández- Ballesteros, Zamarrón, Diez-Nicolás, Molina, López-Bravo & Schettini, in press; Mendoza-Ruvalcaba & Arias-Merino, 2010.

4. Concluding remarks

Although a consensus on criteria for defining successful ageing has still not been achieved, the concept has some points of agreement:

First, the authors consider that to reduce successful ageing to only a simple outcome – such as health, life satisfaction or daily living – is to simplify a complex new concept; doing so, it would be better to refer to "healthy ageing", "satisfactory ageing" or "independent ageing". Therefore, it is concluded that when successful ageing is used (or any other related terms), it must be operationalised as a multidimensional concept (e.g. Baltes & Baltes, 1990; Fernández Ballesteros, 2008; Rowe & Khan, 1987, 1997). Multidimensionality is not only considered as a characteristic of this concept from the expert point of view but all research looking for lay definitions recognises this characteristic (e.g. Bowling, 2006; Fernández-Ballesteros et al., 2008).

Second, according to this multi-criteria approach, several domains are coincident in the majority of definitions: functional independence, physical fitness, health status (objective and subjective), cognitive status, and life satisfaction. It must be recognised that deriving similar measures or scales to assess those domains is a task for future research on successful ageing.

Third, the most powerful predictors reported seem to be in the first place socio-demographics (age, gender, education and income), and lifestyles (physical activities, usually drink[1], body mass, nutritional status[2]) but it must be noted that personality (e.g.

[1] It must be taken into consideration that in Spain the Mediterranean diet is the commonest diet in our sample, and therefore 50 per cent of ELEA participants reported they usually drank a glass of wine.

[2] In Mexico, as well as in developing countries, nutritional issues are especially important within the elderly. In the *Mujeres Grandes* study in particular 82.7% reported nutritional risk, and more than the half high risk.

extraversion, neuroticism, emotional balance) and psychopathology (e.g. depression) are also predictors of successful ageing. The importance of intelligence as a predictor of all criteria in the ELEA study cannot be overstated since, as intelligence is a psychological characteristics largely accepted with an epidemiological value (e.g. Deary, 2009).

Finally, successful ageing must be seen as a result of a lifelong process, in which a variety of influences in early childhood, adolescence, early and middle adulthood are at work. Present life circumstances of older persons, however, also determine the process of ageing; a non-ageist society providing opportunities to the older generation for self-development and social involvement and older individuals being willing for their part to continue being active are both conditions for coping with an ageing world. The eightieth birthday of Prof. Lehr marks not only a wise process of ageing with a wise outcome: she continues being an active, productive, and influential person.

References

[1] Avlund, K., Holstein, B., Mortensen, E., & Schroll, M., Active life in old age. Combining measures of functional ability and social participation, *Danish Medical Bulletin* **46:4** (1999), 345-349.

[2] Baltes, P., & Baltes, M., *Successful Aging*, Cambridge University Press, New York, 1990.

[3] Bearon, L. B., Successful aging: What does the "goodlife" look like? *The Forum* **3** (1996), 1-7.

[4] Berkman, L. F., Seeman, T. E., Albert, M., Blazer, D. G., Kahn, R. L., Mohs, R., et al., High, usual and impaired functioning in community-dwelling older men and women: Findings from the MacArthur Foundation Research Network on successful aging, *Journal of Clinical Epidemiology* **46** (1993), 1129-1140.

[5] Bowling, A., Lay perceptions of successful ageing: findings from a national survey of middle aged and older adults in Britain, *European Journal of Ageing* **4** (2006), 57-58.

[6] Britton, A., Shipley, M., Singh-Manoux, A., & Marmot, M., Successful Aging: The contribution of early-life and midlife risk factors, *Journal of the American Geriatrics Society* **56** (2008), 1098-1105.

[7] Burke, G. L., Arnold, A. M., Bild, D. E., Cushman, M., Fried, L. P., Newman, A., et al., Factors Associated with Healthy Aging: The Cardiovascular Health Study, *Journal of American Geriatrics Society* **49** (2001), 254-262.

[8] Butler, R., & Gleason, H. P., *Enhancing vitality in later life,* Springer, New York, 1985.

[9] Deary, I. J., Introduction to the special issue on cognitive epidemiology, *Intelligence* **37** (2009), 517-634.

[10] Depp, C. A., & Jeste, D. V., Definitions and Predictors of Successful Aging: A comprenhensive Review of Larger Quantitative Studies, *American Journal of Geriatric Psychiatry* **14** (2006), 6-20.

[11] Diez-Nicolás, J., *Los mayores en la comunidad de Madrid,* Caja Madrid, 1996.

[12] Erikson, E. H., & Erikson, J. M., & Kivnick, H., *Vital involvement in old age: The experience of old age in our time,* Norton, London, 1986.

[13] Fernández-Ballesteros, R., *Active aging. The Contribution of Psychology*, Hogrefe, Gottebörg, 2008.

[14] Fernández-Ballesteros, R., Zamarrón, M. D., Rudinger, G., Schroots, J. F. F., et al., Assessing competence: The European Survey on Aging Protocol (ESAP), *Gerontology* **50** (2004), 330-347.

[15] Fernández-Ballesteros, R., Kruse, A., Zamarrón M. D., & Caprara, M. G., Quality of Life, Life Satisfaction, and Positive Ageing, in: R. Fernandez-Ballesteros (Ed.), *Geropsychology. An European perspective for an ageing world*, 196-223, Hogrefe & Huber, Gottingën, 2007.

[16] Fernández-Ballesteros, R., García, L. F., Blanc, L., et al., Lay Concept of Aging Well: Cross-Cultural Comparisons, *J. American Geriatric Society* **56** (2008), 950-952.

[17] Fernández-Ballesteros, R., Zamarrón, M. D., Díez-Nicolás, J., López-Bravo, M. D., Molina, M. A., & Schettini, R., *Mortality and participation in the Longitudinal 90+ project,* Autonomous University of Madrid Research Report, Madrid, 2009.

[18] Fernández-Ballesteros, R., Zamarrón, M. D., Molina, M. A., Diez Nicolás, J., & Schettini, R., Envejecimiento con éxito: criterios y predictores, *Psicothema,* im Druck.

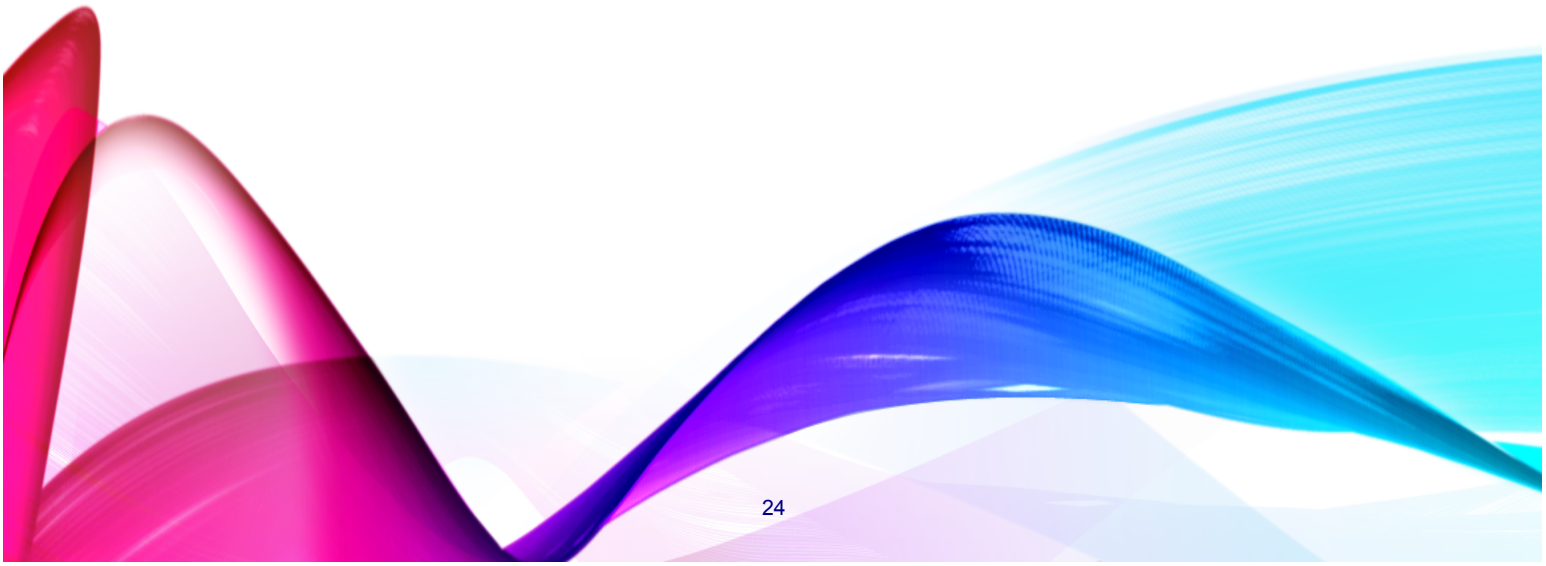
[19] Folstein, M., Folstein, S., & McHugh, P., "Mini-Mental State": a practical method for granding the cognitive state of patients for the clinician, *Journal of Psychiatric Research* **12** (1975), 189-198.

[20] Ford, A., Haug, M., Stange, K., Gaines, A., Noelker, L., & Jones, P., Sustained Personal Autonomy: A Measure of Successful Aging, *Journal of Aging and Health* **12** (2000), 470-489.

[21] Fries, J. F., *Aging well,* Mass, Addison-Wesley Pub, Reading, 1989.

[22] Gergen, M., & Gergen, K., Positive aging: New images for a new age, *Age International* **27** (2001), 3-23.
[23] Guralnik, J. M., & Kaplan, G. A., Predictors of Healthy Aging: Prospective Evidence from the Alameda County Study, *American Journal of Public Health* **79:6** (1989), 703-708.
[24] Havighurst, R. J., Successful Aging, *The Gerontologist* **1** (1960), 8-13.
[25] Jorm, A. F., Christiansen, H., Henderson, S., Jacomb, P. A., Korten, A. E., & Mackinnon, A., Factors associated with successful ageing, *Australasian Journal of Ageing* **17** (1998), 33-37.
[26] Kondrup, J., Rasmussen, H. H., Hamberg, O., & Stanga, Z., Nutritional risk screening (NRS 2002): a new method based on an analysis of controlled clinical trials, *Clinical Nutrition* **22:3** (2003), 321-336.
[27] Kruse, A., Productivity and modes of human activity, in: S. Pohlmann (Ed.), *Facing an aging world. Recommendations and perspectives*, 107-112, Trasnfer Verlag, Regensburg, D, 2002.
[28] Lawton, M. P., & Brody, E. M., Assessment of older people: Self-maintaining and instrumental activities of daily living, *The Gerontologist* **9** (1969), 179-186.
[29] Lehr, U., A model of well-being in old age and its consequences for further longitudinal studies, in: J. J. F. Schroots (Ed.), *Aging, health and competence*, 293-300, Elsevier Science Publishers, 1993.
[30] Mahoney, F. I., & Barthel, D., Functional evaluation: the Barthel Index, in: M. V. Lucas-Vaquero (Ed.), *Compilación de Técnicas para una evaluación multidimensional en la vejez,* Venezuela, Facultad de Medicina, Universidad de Zulia, 1965.
[31] Mendoza-Ruvalcaba, N. M., & Arias-Merino, E., *Envejecimiento Activo: ¿quiénes cumplen los criterios?* (Reporte DEA), Universidad Autónoma de Madrid, Madrid, 2010.
[32] Newman, A., Arnold, A., Naydeck, B., Fried, L., Burke, G., Enright, P., et al., Successful Aging: effect of subclinical cardiovascular disease, *Archives of Internal Medicine* **163** (2003), 2315-2322.
[33] Palmore, E., Predictors of Successful Aging, *The Gerontologist* **19** (1979), 427-431.
[34] Peel, N. M., McClure, R. J., & Bartlett, H. P., Behavioral Determinants of Health Aging, *American Journal of Prevention Medicine* **28** (2005), 298-304.
[35] Reed, D. M., Foley, D. J., White, L. R., Heimovitz, H., Burchfiel, C. M., & Masaki, K., Predictors of healthy aging in men with high life expectancies, *American Journal of Public Health* **88** (1998), 1463-1468.
[36] Ross, N. P., & Havens, B., Predictors of Successful Aging: A Twelve-Year Study of Manitoba Elderly, *American Journal of Public Health* **81:1** (1991), 63-68.
[37] Rowe, J. W., & Khan, R. L., Human aging: Usual and Successful, *Science* **237** (1987), 143-149.
[38] Rowe, J. W., & Kahn, R. L. (1997). Successful Aging, *The Gerontologist,* **37:4**, 433-440.
[39] Strawbridge, W. J., Cohen, R. D., Sheman, S. J., & Kaplan, G. A., Successful Aging: Predictors and Associated Activities, *American Journal of Epidemiology* **144:2** (1996), 135-141.
[40] Thomae, H., Patterns of successful aging, in: H. Thomae (Ed.), *Pattern of aging*. Karger, Babel, 1975.
[41] Vaillant, G. E., & Mukamal, K., Successful Aging, *American Journal of Psychiatry* **158** (2001), 839-847.
[42] VonFaber, M., Bootsma, A., Van Exel, E., Gussekloo, J., Lagaay, A., CVan Dongen, E., et al., Successful Aging in the Oldest Old: Who can be characterized as successfully aged? *Archives of Internal Medicine* **161** (2001), 2694-2700.
[43] World Health Organization, *Healthy aging,* WHO, Geneva, 1990.
[44] World Health Organization, *Ageing: exploding the myths*, WHO, Geneva, 1999.
[45] World Health Organization (Ed.), *Active Ageing: A Policy Framework*, WHO, Geneva, 2002.
[46] Yesavage, J. A., Brink, T. L., Rose, T., Lum, O., Huang, V., Adey, M., et al., Development and validation of a geriatric depression screening scale: A preliminary report, *Journal of Psychiatric Research* **17:1** (1983), 37-49.

3. El contexto del estudio



3. El Contexto del Estudio

Los cuatro estudios que conforman este proyecto se llevaron a cabo en la región Centro-Occidente de México, los dos estudios de base poblacional se llevaron a cabo en los estados de Jalisco y Colima, mientras que los dos estudios de intervención se desarrollaron en la ciudad de Guadalajara, capital del estado de Jalisco.

El envejecimiento de la población en México es uno de los retos más importantes que enfrentará el país durante la primera mitad de este siglo. En poco tiempo la población de edades avanzadas aumentará respecto a otros grupos de edad, lo que implica cambios en las demandas de bienes y servicios de salud, de seguridad social y de relaciones familiares. Según el Consejo Nacional de Población CONAPO (2011), México experimenta actualmente un proceso acelerado de transición demográfica, marcado por un descenso en las tasas de mortalidad y natalidad, lo que lleva consigo un aumento considerable en la proporción de adultos de 65 años o más, que pasó de 4.7% en el año 2000 a 8.5% en 2010. De acuerdo con las Naciones Unidas (2015) en 2015 9.6% de la población eran personas mayores, se estima que para 2030 la cifra incremente a 14.9%, y llegue a 24.7% en 2050 lo que supondrá aproximadamente 40.3 millones de personas mayores de 60 años. El ritmo de crecimiento del grupo de las personas mayores es más acelerado que el del conjunto de la población total del país (3.5 *versus* 1.3 en el año 2000, y 4.3 *versus* 0.7 en 2018). Se registra también un aumento en la esperanza de vida al nacer, que va en general desde 74 años en el año 2000 hasta 80 en el 2050. Además, según la Organización Mundial de la Salud (OMS), en México el grupo de adultos mayores en edades más avanzadas es el que experimenta mayor crecimiento, para el año 2030 45.9% de la población adulta mayor tendrá 70 años o más, cifra que se elevará a 55.5% para el 2050. La propia población adulta mayor también está envejeciendo (World Health Organization, 2002).

De manera más específica, el estado de Jalisco (ubicado en la región centro occidente del país), experimenta también un cambio sociodemográfico

caracterizado por el envejecimiento progresivo de la población. Según el Censo de Población y Vivienda 2015, en Jalisco viven 7,844,830 habitantes, y es la cuarta entidad más habitada del país. Del total de la población, 9.1% son personas mayores de 60 y más años, que representan 671,323 habitantes. De ellos, más de la mitad (53.6%) se concentra en los municipios que conforman la Zona Metropolitana de Guadalajara, en total 359,782 adultos mayores. Se estima que en 2020 el porcentaje de personas mayores ascienda a 13% (970,667 personas) y sea de 17.9% para 2030 (1,3781,105 personas).

Por su parte el estado de Colima es una entidad con mucho menor población, en el comparativo nacional ocupa el lugar número 32 a nivel nacional por su número de habitantes, estimado en 711,235 en 2015 (Instituto Nacional de Estadística Geografía e Informática, 2015). En 2010, la población de personas mayores representaba 9% de la población (56,152 mayores), y se proyecta que ascienda a 13.2% en 2020 (91,466 personas) y 19% en 2030 (140,548 personas mayores).

Figura 1. Localización geográfica de los estados de Jalisco y Colima, en la Región Occidente de México.

El estudio del envejecimiento activo en este contexto de estudio tiene una justificación desde diferentes marcos políticos y legales tanto a nivel internacional como nacional. El Programa de Envejecimiento y Ciclo Vital de la OMS en la Segunda Asamblea Mundial de las Naciones Unidas sobre el Envejecimiento (celebrada en Madrid en 2002), propone un marco normativo así como un enfoque conceptual, enfatizando que *"… en los países en vías de desarrollo, las medidas para ayudar a que las personas ancianas sigan sanas y activas son, más que un lujo, una auténtica necesidad"* (WHO, 2002; WHO, 2015). La 58ª Asamblea Mundial de la Salud de 2005, reconoce la necesidad de aplicación de medidas e insta a los estados miembros a la elaboración, aplicación y evaluación de programas que promuevan un envejecimiento activo (Organización Mundial de la Salud, 2005). En México, el planteamiento del envejecimiento activo se basa además en: la Ley de los Derechos de las Personas Adultas Mayores (Congreso General de los Estados Unidos Mexicanos, 2002), el Manual de los Derechos Humanos y no discriminación del Adulto Mayor (2003), y la Ley para el Desarrollo Integral del Adulto Mayor del Estado de Jalisco (Congreso del Estado de Jalisco, 2011); donde se enmarca la necesidad de promover acciones de salud para que las personas mayores tengan un mejor envejecimiento.

En general, el panorama de envejecimiento poblacional en México suscita la preocupación sobre temas económicos, políticos y sociales, pero principalmente sobre temas relacionados con la salud.

Este escenario de envejecimiento, subraya la importancia de analizar las condiciones de vida de las personas mayores desde la perspectiva del envejecimiento activo. Plantea cuestiones relevantes al contexto y los individuos, respecto a identificar la proporción de personas con envejecimiento activo o exitoso, conocer los factores relacionados a este tipo de envejecimiento, y analizar las condiciones de la calidad de vida en este contexto. Lo que posteriormente podrá derivar en propuestas de intervención.

Las publicaciones que se presentan en este apartado ayudan a entender y analizar el contexto donde se llevaron a cabo los estudios que integran este trabajo.

3.1 ARTÍCULO ORIGINAL:

Prevalencia de Envejecimiento Exitoso en Personas Mayores del Occidente de México

Referencia:
Arias Merino, E.D., Mendoza Ruvalcaba, N.M, Arias Merino M.J., Cueva Contreras, J., Vázquez Arias, C. (2012). Prevalence of successful aging in the elderly in Western Mexico. *Current Gerontology and Geriatrics Research*.2012: 6p.

El objetivo de este artículo es estimar la prevalencia de envejecimiento exitoso en personas mayores del occidente de México, así como analizar su variabilidad según la edad, el sexo, la educación, estado civil y ser pensionado.

En este estudio se emplearon datos de la Encuesta Salud Bienestar y Envejecimiento (SABE) llevada a cabo en los estados de Jalisco y Colima, en la que participaron un total de n=3116 personas mayores. El envejecimiento exitoso se fundamentó en el modelo teórico de Rowe y Kahn (1997), la operacionalización del concepto se basó en los estudios de Strawbridge (2002) y McLaughlin (2010), definido como: 1) ausencia de enfermedad (autoinforme de no presentar ninguna de las siguientes crónicas cáncer, enfermedad crónica pulmonar, diabetes, enfermedad cardiaca, e infarto, además de ausencia de depresión), 2) no tener discapacidad (autonomía en seis actividades de la vida diaria desplazarse en la habitación, vestirse, ducharse, comer, levantarse de la cama, y usar el inodoro), 3) funcionamiento físico (no reportar dificultades para seis de las siguientes actividades: caminar una calle, caminar varias calles, subir escaleras una planta, varias plantas, cargar objetos de al menos 5 kilos, ponerse de pie sentarse y arrodillarse, empujar o jalar objetos grandes), 4) funcionamiento cognitivo (medido

con el Mini-examen del Estado Mental MMSE), y 5) compromiso con la vida (referir conexiones sociales y de participación en la última semana como hacer voluntariado o trabajo remunerado, así como reportar relaciones sociales, familiares o conyugales).

Como resultado se estimó una prevalencia de 12.6% de envejecimiento exitoso. A mayor edad se encontró una menor proporción de envejecimiento exitoso; entre el grupo de 69 a 69 años fue 18.9%, entre los de 70 a 79 años fue 10.7%, entre 80 a 89 la prevalencia fue 3.9%, y se estimó en apenas 1% entre las persona de 90 años y más. También se observaron diferencias significativas según el sexo, con una mayor proporción para los hombres (18.4% comparado con 9.2% entre las mujeres). Se reportaron también diferencias de acuerdo al nivel educativo, entre aquellos con mayor educación se encontró mayor proporción de envejecimiento exitoso, igualmente hubo diferencias en el estado civil con significativamente mayor proporción entre las personas casadas o con pareja.

Estos factores asociados son analizados y discutidos, además de señalar la necesidad de una análisis más profundo de los conceptos e indicadores.

Hindawi Publishing Corporation
Current Gerontology and Geriatrics Research
Volume 2012, Article ID 460249, 6 pages
doi:10.1155/2012/460249

Research Article

Prevalence of Successful Aging in the Elderly in Western Mexico

Elva Dolores Arias-Merino, Neyda Ma. Mendoza-Ruvalcaba, Martha Judith Arias-Merino, Jazmín Cueva-Contreras, and Carlos Vazquez Arias

University Center for Health Sciences, University of Guadalajara (UDG), 44348 Guadalajara, JAL, Mexico

Correspondence should be addressed to Elva Dolores Arias-Merino, elvadolores@gmail.com

Received 5 June 2012; Revised 14 August 2012; Accepted 25 August 2012

Academic Editor: Rocío Fernández-Ballesteros

Objectives. The aim of this paper is to estimate the prevalence of successful aging in the elderly in Western Mexico and to analyze its variability by age, sex, education, marital status, and pension. *Methods*. This study employs data from the Health, Wellbeing, and Aging Study (SABE) in Jalisco and Colima, Mexico. Successful aging was operationalized in accordance with no important disease, no disability, physical functioning, cognitive functioning, and being actively. There were a total of 3116 elderly. *Results*. 12.6% of older adults were "successful" aging. The old-old is a lower proportion of successful aging people; it ranges from 18.9% among people aged 60–69 years to 3.9% in the 80–89 years and up to 1% in people 90 and older. There were also differences according to sex ($P = .000$), with a higher proportion of successful aging men (18.4% compared with 9.2% of women). There were differences in educational level ($P = .000$); those higher with education were found to be more successful aging, and also there were differences in marital status for married people ($P = .000$). *Discussion*. A small number of older adults meet the criteria definition of successful aging, suggesting the need to analyze in depth the concept and the indicators.

1. Introduction

The increase in the relative and absolute number of older people in our society has posed a major challenge for both individual and collective levels in the study of aging. It had appeared various contributions, at the individual level, extending the biological perspective of disease and disability with a more positive and comprehensive one, covering the social and behavioral sciences to reduce the risk of adverse events and improve the resilience of the seniors and make changes in their immediate surroundings [1].

At the population level, aging is seen as a challenge that involves, in addition, as stated by Fernandez-Ballesteros [2], challenges such as the double burden of disease, increased risk of disability, having to provide adequate care for the aging population, addressing inequalities, economic challenges, and having a different view of aging and old age.

In industrialized countries, demographic and social changes of the population have brought into discussion the approach of public policies on aging related to pensions, employment, health social care, and protection of citizenship. In this context emerges a new paradigm that implies a new vision of aging, a positive vision, called "active aging". *The WHO has considered that Active Ageing is the key if it is wanted to make aging a positive experience and free of disability, with ongoing opportunities for health, participation and security especially in increasingly aging societies like ours* [3].

The concept of active aging emphasizes the vital connection between activity and health since it considers active aging in terms of health, independence, and productivity of older people. It also incorporates key principles to meet the policy domains required to successfully meet the challenges of an aging population: the activity, prevention, inclusion of all older people, maintenance of intergenerational solidarity, rights and obligations, participation and empowerment of the people, and respect for national and cultural diversity (for review, see Alan Walker [4, 5]).

Alan Walker [5] performed an important review of the theoretical foundations of the term active aging and explains that the use of it is much older in the United States, dating back to the 1960s, [6] initially taking the name of "successful aging" is to keep in the old age the same activity patterns and values typical of the middle age.

Regarding this issue, Rowe and Kahn [1, 7, 8] made an important contribution, with a theoretical model of "successful aging" at the individual level covering three different areas: preventing disease and disability, maintaining high physical and cognitive function, and to having a sustained commitment to social and productive activities. This model has been widely used as a tool to describe the aging of the elderly; [9–21] however, as aging is a dynamic process it may vary over time by the influence of the social, economic, and political dimensions [22, 23].

In this study we will use the model of Rowe and Kahn on successful aging considering that active aging encompasses both macro- and microstructural dimensions and that, occurs over time as active aging leads to successful aging.

This model considers that there are different forms of aging: usual, pathological, and successful. Fernandez-Ballesteros [24] mentions that successful aging can be considered as a categorical variable that can estimate prevalence in the population.

The aim of this paper is to estimate the prevalence of successful aging in the elderly in western Mexico as defined by Rowe and Kahn and analyze its variability by age, sex, education, marital status and pension.

2. Methods

2.1. Population and Procedures. This study employs data from the Health, Wellbeing, and Aging Study (SABE) in Jalisco and Colima, Mexico. It is a cross-sectional study proposed for Latin American population by the PAHO; it consists in a protocol to assess health, functionality, nutritional, cognitive, emotional, and social aspects of elderly [25]. A total of 3,116 elderly persons were included in a multistage, proportional, and randomized sample that included the states of Jalisco ($n = 1596$) and Colima ($n = 1520$) (in western Mexico). Maps and databases of potential populations were consulted. To carry the survey out in the geographical area, study areas were defined through the National Geostatistic Framework (INEGI). Basic Geo-statistical Areas (*AGEBs*) were chosen randomly, and the same was done for regarding blocks and homes until finding the study subjects. Persons 60 years and older were invited to participate in the study. Characteristics of the study participants are shown in Table 1; 15.8% of people had cognitive impairment, which was requested an informed as suitable to respond to the interview. Ethical approvals in both states and informed consent or relative agreement were obtained.

2.2. Dependent Variable. Based on the conceptualization of Rowe and Kahn [1] of successful aging and studies by Strawbridge et al. [19] and McLaughlin et al. [22] successful aging is defined as having (a) no important disease, (b) no disability in activities of daily living (ADLs), (c) no more than one difficulty of seven measures of physical functioning, (d) cognitive functioning, and (e) being actively engaged. (for review, see McLaughlin et al. [22], SABE study included same indicators in the survey).

No Important Disease. Participants in SABE study were asked that if ever a doctor or nurse has told them to have each of the following five chronic diseases: cancer, chronic lung disease, diabetes, heart disease and stroke (for this analysis hypertension and articulate disease were excluded). We have also included a measure of mental health as McLaughlin refers [22], in the SABE study, we applied the Geriatric Depressive Screening scale (GDS) with scores ranging from 0–15. We considered subjects with high depressive symptoms those with a score >5. To meet the criteria of "lack of serious illness", respondents could not have any of the five chronic diseases and depressive symptoms as classified [26].

No Disability. Respondents who reported no difficulty performing each of the six basic activities of daily living ADLs (i.e., walking across a room, dressing, bathing or showering, eating, getting in or out of bed, and toileting) met the criterion of no disability [12, 19].

Physical Functioning. Participants were classified as with high physical functioning if did not reported more than one difficulty with any of the following seven measures, including walking one block, walking several blocks, climbing up one floor of stairs, climbing several floors of stairs, lifting or carrying the items weighing more than 10 pounds, stooping, kneeling, stooping or squatting, and pulling or pushing big objects. The SABE survey measures are identical to the study of McLaughlin et al. [22] which has its background in Seeman et al. [13].

Cognitive Functioning. Cognitive impairment was measured using the Mini-Mental State Examination of the SABE protocol [27]. The MMSE score was calculated using the sum of correct answers (0–19 points), the cutoff point was 12/13.

Being Actively Engaged. It refers to social connections and participation in productive activities [1, 8]. For this analysis, it is defined as "actively participate" if the participant reported doing any paid work during the last week from the interview, or any volunteer work, family, home or selling on their own. In addition to reporting any of these social connections: being married or living in company with a relative or friend, and if participants attend religious celebrations often.

2.3. Independent Variables. Age, gender, education, marital status, and pension were included in the analysis. Age was categorized as 60–74 years and 75 and older. Education was categorized as less than high school and secondary or higher education level.

2.4. Analytic Techniques. The prevalence of successful aging was calculated by age, gender, education, marital status, and pension. To determine if sociodemographic differences were statistically significant, the adjusted odds ratio (OR) and 95% confidence intervals (CIs) were calculated. The independent associations between age, sex, education, marital status and pension, and successful aging were evaluated by binary

Table 1: Socio-demographic Characteristic by Sex.

Characteristic	Women % (*n*)	Men % (*n*)	Total % (*n*)
Sex***	62.5 (1949)	37.5 (1167)	100.0 (3116)
Age, years***			
60–69	45.6 (889)	37.8 (441)	42.7 (1330)
70–79	34.0 (662)	39.4 (460)	36.0 (1122)
80–89	17.4 (340)	19.2 (224)	18.1 (564)
90+	3.0 (58)	3.6 (42)	3.2 (100)
Education (level)***			
Did not attend school	21.0 (409)	19.5 (228)	20.4 (637)
Less than high school	59.0 (1150)	53.6 (626)	57.0 (1776)
High school or higher	20.0 (390)	26.8 (313)	22.6 (703)
Marital status***			
Married	45.9 (894)	71.5 (834)	55.5 (1728)
Widowed/separated/ divorced	46.4 (904)	24.5 (286)	38.2 (1190)
Never married	7.7 (151)	4.0 (47)	6.4 (198)
Pension***			
Yes	9.4 (184)	41.0 (478)	21.2 (662)
No	90.6 (1785)	49.0 (689)	78.8 (2454)

***$P = .000$.

logistic regression analysis (confidence intervals by exp β of 95%).

3. Results

Table 1 shows the sociodemographic characteristics of participants. The mean age was 72.41 (SD = 8.47) years, the majority of participants were women (62.5%). Regarding education, 20.4% were illiterate, 57.0% had less than secondary education, and only 22.6% more than high school. Most of the elderly were married (55.5%) and 6.4% never did so. Only 21.2% had pension.

While comparing the sociodemographic characteristics by gender we see that 45.6% of women were between 60 and 69 years old as opposed to 37.8% of men, this difference affects the average age where women obtained 72.0 ± 8.54 and 73.0 men ± 8.33 years.

At the same time, men mentioned higher levels of education than women, for example, 26.8% of men have high school or higher level of education, while on the other hand only 20.0% of women have it. Regarding to marital status, 71.5% of men claimed to be married or cohabiting, while only 45.9% of women did. These gender differences are more marked on the pension, as only 9.4% of women report receiving pension compared with 41.0% of men.

The ratio of participants meeting the criteria of successfully aging was calculated, the results are shown in Table 2. As it can be seen, a higher percentage met the criteria of cognitive functioning (84.2%), men (86.4%) in greater proportion than women (83.0%), and no disability (74.2%),

Table 2: Percentage of older adults meeting each individual successful aging criterion and total percentage.

Criteria	Women % (*n*)	Men % (*n*)	Total % (*n*)
No major disease	40.1 (761)	42.5 (484)	41.0 (1245)
No disability	73.1 (1414)	76.1 (884)	74.2 (2298)
Cognitive functioning*	83.0 (1617)	86.4 (1008)	84.2 (2625)
Physical functioning***	33.0 (643)	49.8 (581)	39.3 (1224)
Social engagement***	43.2 (842)	57.3 (669)	48.5 (1511)
Successful aging***	9.2 (179)	18.4 (215)	12.6 (394)

*$P = .01$ ***$P = .000$.

Table 3: Successful aging by age, sex, education, marital status and pension.

Variable	Successful aging % (*n*)	No Successful aging % (*n*)	P =*
Age (years)			
60–69	18.9 (251)	81.1 (1079)	.000
70–79	10.7 (120)	89.3 (1002)	
80–89	3.9 (22)	96.1 (542)	
90+	1.0 (1)	99.0 (99)	
Sex			
Women	9.2 (179)	90.8 (1770)	.000
Men	18.4 (215)	81.6 (952)	
Education (level)			
Did not attend school	5.8 (37)	94.2 (600)	.000
Less than high school	12.4 (220)	87.6 (1556)	
High school or higher	19.5 (137)	80.5 (566)	
Marital status			
Married	19.9 (344)	80.1 (1384)	.000
Widowed/separated/ divorced	2.9 (35)	97.1 (1155)	
Never married	7.6 (15)	92.4 (183)	
Pension			
Yes	13.9 (92)	86.1 (570)	.093
No	12.3 (302)	87.7 (2152)	

* Chi-square test.

while 41.0% and 39.3% met the criteria of nondisease and physical functioning, respectively. The latter with significant differences by sex (33.0% women and 49.8% men).

The criterion of social commitment was met by 48.5% of the participants; women also had lower percentage (43.2%) than men (57.3%).

Altogether, 12.6% of the participants met all the criteria to be considered as successfully aging. When comparing among successfully aged elderly (see Table 3) significant differences ($P = .000$) according to age were found. In older age there is a lower proportion of active aging people, it ranges from 18.9% among those between 60–69 years to 3.9% among those between 80–89 years and up to 1% in people 90 and older. There were also differences according

Table 4: Crude and adjusted odds ratio for successful aging.

Variable	Successful aging (%)	Crude OR (95% CI)	$P =$	Adjusted OR* (95% CI)	$P =$
Age, years					
≥75	5.2	0.30 (0.23–0.39)	.000	0.35 (0.26–0.47)	.000
60–74	17.0				
Sex					
Women	9.2	0.50 (0.41–0.60)	.000	0.52 (0.41–0.66)	.000
Men	18.4				
Education					
≤high school	10.7	0.55 (0.45–0.66)	.000	0.58 (0.45–0.75)	.000
>high school	19.5				
Married status					
No	3.6	0.18 (0.13–0.24)	.000	0.20 (0.14–0.27)	.000
Yes	19.9				

Notes: adjusted for age, sex, education and marital status.
OR: odds ratio, CI: confidence interval, *binary logistic regression.

to gender ($P = .000$), with a higher proportion of men aged successfully (18.4% compared to 9.2% of women). In the same way, differences in educational level ($P = .000$), whereas education level increasing more active aging was found, and also differences in marital status for married people ($P = .000$). There were no differences according to whether receiving pension or not ($P = .093$).

Finally crude and adjusted odds ratios and confidence intervals for successful aging were calculated, the results are shown in Table 4.

As seen in the unadjusted analyses, 30.0% of adults of 75 or more years had the possibility of successful aging compared to the group of 60 to 74 years, OR = 0.30 (0.23 to 0.39, CI 95%). Women had 50.0% less successful aging than the observed in men, OR = 0.50 (0.41 to 0.60, CI 95%). Participants with lower education had only 55.0% successful aging compared to those with higher education, OR = 0.55 (0.45 to 0.66, CI 95%).

Finally, the elderly that at the time of the interview were not married or cohabiting had only 18% of successful aging compared to those who were married, OR = 0.18 (0.13 to 0.24, CI 95%). After adjusting for sociodemographic factors (age, sex, education and marital status) these four are held as factors in the model of successful aging. The adjusted odds ratios are slightly higher than the unadjusted.

4. Discussion

In this study the prevalence of successful aging was 12.6%. Mexico is currently in the process of demographic transition towards an aging population, even though the life expectancy is lower than that in developed countries. It is not known whether in Mexico there are other studies that estimate the prevalence of successful aging or not, so the comparison of our results with studies from developed countries is flat and should be viewed with caution, given the differences in the age structure of aging population and the social and economic conditions.

Other active aging studies that were based on the criteria of Rowe and Kahn found 18.8% [19] and 11.9% to 10.9% [22] of prevalence of successful aging. Several review studies have found a large variability in the indicators that have an influence on how the prevalence of successful aging is defined, having a direct effect on the reported figures. For example, Depp and Jeste [28] reviewed 27 studies where besides defining the concept operationally, they established the prevalence of successful aging and found a range that varied from 0.4 to 95%. In a similar review study by Peel et al. [29] 18 studies that included definitions of successful aging were analyzed and it was found that the prevalence established in these studies ranged from 3% to 80%. With this, it can be established that the nature of definitions, domains, and selected measures results in considerable variation in the proportion of the population classified as successful aging. Overall, we had a low nonparticipation rate estimated in 8.67%. The population study consisted of a greater number of women (62.5%) than men (37.5%) with an average age less than men. The reason could be because the interviews were conducted in homes, and men, particularly the younger, still have a working life.

Regarding gender, in this study it was found that more men than women meet the criteria of Rowe and Kahn's successful aging. This is a controversial finding, since other studies have found opposite trends where more women than men have higher prevalence of successful aging. For example Strawbridge et al. [19] reported significant differences when finding that 21.5% of women and 15.4% of men met the criteria for successful aging, while McLaughlin et al. [22] found a trend towards men but not significant one. However, we think that in our female population the prevalence is consistent with the data, as these are seen as linked to lower cognitive and physical function as well as less social and productive participation. Also, it is observed in women a lower level of education, a significant number of widows, and almost no pension (9.4%).

The results regarding the relation between age and level of education with successful aging are more consistent in the sense that as age increases, the percentage of people with successful aging decreases, while higher education prevalence of successful aging among the population increases significantly.

A limitation of this study is that some of the criteria for successful aging are based on self-referrals of both health status and physical activity. However, the criterion of cognitive function was actually evaluated and in some way helps to ensure that the classification is not based only on subjective judgments. In the same way, the assessment of depressive symptoms was performed using a validated scale.

It is also necessary to consider that 15.8% of the sample had cognitive impairment and was asked to perform a key informant interview. Thus, this study found 84.2% of cognitive function, similar to the numbers found in a study of prevalence of cognitive impairment in Jalisco population, estimated in 85.5% [30].

Regarding no disability estimated in 74.2%, it was found in our population a lower percentage of no disability than the other seven populations of Latin American cities, in the SABE study, who ranged from 76.3%–86.2% of no disability [31].

Another limitation is that our study is about prevalence so that the associations are horizontal and do not allow the establishment of predictors. However, this is a first approach that contributes to the characterization of the Mexican population around the concept of successful aging.

5. Conclusions

This study presents a research on the prevalence of successful aging in elderly in western Mexico. A small number of elderly met the criteria of Rowe and Kahn definition of successful aging, so more effort is required in the individual and collective levels to improve the health, economic, and social participation conditions, as well as greater efforts to establish public policies in accordance with the principles of active aging in different dimensions from the macro-, meso- and microstructural that include people of all ages, so that different generations can age actively and achieve successful aging.

Regarding the criteria for successful aging, Rowe and Kahn proposal includes biological, psychological, and social aspects, which gives the desired multidimensionality at an individual level to define successful aging. However, it is in the operationalization and the establishment of indicators where more efforts should be done to reach consensus and achieve comparative studies to reach with it more consistency.

Acknowledgments

This study was supported by SABE Colima, fund FONCICYT, (CONACYT-EU) CASOENAC Project 94670, and SABE Jalisco, fund COECYTJAL-UDG 25-2008-891.

References

[1] J. W. Rowe and R. L. Kahn, "Successful aging," *The Gerontologist*, vol. 37, no. 4, pp. 433–440, 1997.

[2] R. Fernandez-Ballesteros, *Active Aging. The Contribution of Psychology*, Hogrefe & Huber, Göttingen, Germany, 2008.

[3] WHO, *Active Aging. A Policy Framework*, World Health Organization, Geneva, Switzerland, 2002.

[4] A. Walker, "Active ageing in employment: its meaning and potential," *Asia-Pacific Review*, vol. 13, no. 1, pp. 78–93, 2006.

[5] A. Walker, "A strategy for active ageing," *International Social Security Review*, vol. 55, no. 1, pp. 121–139, 2002.

[6] R. J. Havighurst, "Successful Aging," *The Gerontologist*, vol. 1, no. 1, pp. 8–13, 1961.

[7] J. Rowe and R. L. Kahn, "Human aging: usual and successful," *Science*, vol. 237, no. 4811, pp. 143–149, 1987.

[8] J. Rowe and R. L. Kahn, *Successful Aging*, Pantheon, New York, NY, USA, 1998.

[9] E. Palmore, "Predictors of successful aging," *The Gerontologist*, vol. 19, no. 5, pp. 427–431, 1979.

[10] P. B. Baltes and M. M. Baltes, "Psychological perspectives on successful aging: the model of selective optimization with compensation," in *Successful Aging: Perspectives from the Behavioral Sciences*, P. B. Baltes and M. M. Baltes, Eds., pp. 1–34, Cambridge University Press, New York, NY, USA, 1990.

[11] N. P. Roos and B. Havens, "Predictors of successful aging: a twelve-year study of Manitoba elderly," *American Journal of Public Health*, vol. 81, no. 1, pp. 63–68, 1991.

[12] L. F. Berkman, T. E. Seeman, M. Albert et al., "High, usual and impaired functioning in community-dwelling older men and women: findings from the MacArthur Foundation Research Network on successful aging," *Journal of Clinical Epidemiology*, vol. 46, no. 10, pp. 1129–1140, 1993.

[13] T. E. Seeman, P. A. Charpentier, L. F. Berkman et al., "Predicting changes in physical performance in a high-functioning elderly cohort: MacArthur studies of successful aging," *The Journals of Gerontology*, vol. 49, no. 3, pp. M97–M108, 1994.

[14] W. J. Strawbridge, R. D. Cohen, S. J. Shema, and G. A. Kaplan, "Successful aging: predictors and associated activities," *American Journal of Epidemiology*, vol. 144, no. 2, pp. 135–141, 1996.

[15] A. F. Jorm, H. Christiansen, S. Henderson, P. A. Jacomb, A. E. Korten, and A. Mackinnon, "Factors associated with successful ageing," *Australasian Journal of Ageing*, vol. 17, no. 1, pp. 33–37, 1998.

[16] A. B. Ford, M. R. Haug, K. C. Stange, A. D. Gaines, L. S. Noelker, and P. K. Jones, "Sustained personal autonomy: a measure of successful aging," *Journal of Aging and Health*, vol. 12, no. 4, pp. 470–489, 2000.

[17] G. E. Vaillant and K. Mukamal, "Successful aging," *American Journal of Psychiatry*, vol. 158, no. 6, pp. 839–847, 2001.

[18] M. Von Faber, A. Bootsma-Van Der Wiel, E. Van Exel et al., "Successful aging in the oldest old: who can be characterized as successfully aged?" *Archives of Internal Medicine*, vol. 161, no. 22, pp. 2694–2700, 2001.

[19] W. J. Strawbridge, M. I. Wallhagen, and R. D. Cohen, "Successful aging and well-being: self-rated compared with Rowe and Kahn," *The Gerontologist*, vol. 42, no. 6, pp. 727–733, 2002.

[20] A. B. Newman, A. M. Arnold, B. L. Naydeck et al., "Successful aging: effect of subclinical cardiovascular disease," *Archives of Internal Medicine*, vol. 163, no. 19, pp. 2315–2322, 2003.

[21] A. Britton, M. Shipley, A. Singh-Manoux, and M. G. Marmot, "Successful aging: the contribution of early-life and midlife risk factors," *Journal of the American Geriatrics Society*, vol. 56, no. 6, pp. 1098–1105, 2008.

[22] S. J. McLaughlin, C. M. Connell, S. G. Heeringa, L. W. Li, and J. S. Roberts, "Successful aging in the United States: prevalence estimates from a national sample of older adults," *The Journals of Gerontology B*, vol. 65, no. 2, pp. 216–226, 2010.

[23] C. A. Depp and D. V. Jeste, "Definitions and predictors of successful aging: a comprehensive review of larger quantitative

studies," *American Journal of Geriatric Psychiatry*, vol. 14, no. 1, pp. 6–20, 2006.

[24] R. Fernández Ballesteros, M. D. Zamarrón, M. A. Molina, J. Diez Nicolás, and R. Schettini, "Successful aging: definitions and predictors," *Psicothema*, vol. 22, no. 4, pp. 641–647, 2010 (Spanish).

[25] M. Peláez, A. Palloni, C. Albala et al., *Survey on Aging, Health and Wellbeing*, PAHO, Washington, DC, USA, 2000.

[26] J. A. Yesavage, T. L. Brink, T. L. Rose et al., "Development and validation of a geriatric depression screening scale: a preliminary report," *Journal of Psychiatric Research*, vol. 17, no. 1, pp. 37–49, 1983.

[27] C. Albala, M. Lebrão, E. Léon Díaz et al., "The health, well-being, and aging (SABE) survey: methodology applied and profile of the study population," *Revista Panamericana de Salud Pública*, vol. 17, no. 5-6, pp. 307–322, 2005 (Spanish).

[28] C. A. Depp and D. V. Jeste, "Definitions and predictors of successful aging: a comprehensive review of larger quantitative studies," *American Journal of Geriatric Psychiatry*, vol. 14, no. 1, pp. 6–20, 2006.

[29] N. Peel, H. Barttlett, and R. McClure, "Healthy ageing: how is it defined and measured?" *Australasian Journal of Ageing*, vol. 23, no. 3, pp. 115–119, 2004.

[30] E. D. Arias-Merino, G. G. Ortiz, M. E. Flores-Saiffe et al., "Prevalence of cognitive impairment in Mexican elderly," in *Alzheimer's Disease: New Advances*, Iqbal, Ed., pp. 667–671, Medimond, Madrid, Spain, 2006.

[31] J. Menéndez, A. Guevara, N. Arcia, E. M. León Díaz, C. Marín, and J. C. Alfonso, "Chronic diseases and functional limitation in older adults: a comparative study in seven cities of Latin America and the Caribbean," *Pan American Journal of Public Health*, vol. 17, no. 5-6, pp. 353–361, 2005 (Spanish).

3.2 CAPÍTULO DE LIBRO:

Calidad de Vida en México y en España

Referencia:
Fernández-Ballesteros, R., Arias Merino, E. D., Santacreu, M., Mendoza Ruvalcaba, N.M. (2010). Quality of life in Mexico and Spain. In Powell (Ed.) *The Global Dynamics of Aging*. NY: Nova Science Publishers.

El término Calidad de Vida es un nuevo concepto ampliamente utilizado en el campo de la política pública; por lo tanto, se ha convertido en una meta clave para el bienestar social de las personas mayores a nivel local, nacional, regional e internacional.

En el campo de los servicios sociales y de salud, la calidad de vida de las personas mayores es considerada como un producto de proyectos, programas, o políticas, y es también usado para describir contextos, lugares e individuos.

Con el propósito de describir a las personas mayores de 60 años de México (específicamente el estado de Colima), en comparación con aquellos de España (específicamente la Provincia de Alicante), y, con la finalidad de hacer recomendaciones para alargar e incrementar el bienestar entre esta población en Colima, se ha desarrollado un estudio transcultural. Con este objetivo, se administró el Cuestionario Breve de Calidad de Vida (CUBRECAVI) desarrollado por Fernández Ballesteros y Zamarrón (1996, 2007) a dos muestras representativas de personas mayores de 60 años en México y en España. El CUBRECAVI es un instrumento que ha sido ampliamente utilizado en países Latinoamericanos y en España. Adicionalmente, con la finalidad de tener en consideración el nivel contextual, se analizaron los indicadores de calidad de vida poblacionales tanto de México como de España.

Los resultados se presentan y discuten tomando en consideración tanto las medidas subjetivas y objetivas, así como los factores contextuales y personales.

En conclusión, aunque tanto los factores objetivos como los indicadores de calidad de vida son mejores en España que en México, la apreciación subjetiva de la calidad de vida así como la satisfacción con la vida son mayores en México que en España.

Este proyecto se ha planteado para que sirva como un fundamento para recomendaciones políticas que mejoren las condiciones de vida entre las personas mayores en México, y específicamente en Colima. Los resultados también señalan la importancia de tomar en consideración el concepto multidimensional de Calidad de Vida, donde se incluyan medidas objetivas y subjetivas, así como medidas personales y contextuales como indicadores.

In: The Global Dynamics of Aging
Editors: Jason L. Powell et al., pp.
ISBN 978-1-62100-936-8

Chapter 2

QUALITY OF LIFE IN MEXICO AND IN SPAIN

Rocío Fernández-Ballesteros*[*], Elva-Dolores Arias, Marta Santacreu and Neyda Ruvalcaba

ABSTRACT

The term Quality of Life (QoL) is a new scientific concept broadly-used in the field of public policy; therefore, it has become a key goal in social welfare for the elderly at Local, National, Regional, and International levels. In the field of social and health services, an elder's QoL is considered as an outcome of projects, programs, or policies, and it is also used for describing contexts, places and individuals. With the purpose of describing people living in Mexico (Colima State), older than 60, in comparison to those living abroad, in Spain (Alicante Province), and, in order to make recommendations for enlarging and increasing the number of well-being among this population target in Colima, a cross-cultural study of QoL was performed. With this objective, the CUBRECAVI (*Brief Questionnaire of Quality of Life for the Elderly*, Fernández-Ballesteros and Zamarrón, 1996, 2007) --a multidimensional instrument widely used across Latin American countries and in Spain-- was administered to two representative samples of individuals older than 60 in Mexico and in Spain. Also, in order to take into consideration the contextual (macro) level, QoL population indicators from Mexico and from Spain were examined. The results are presented and discussed taking into consideration both subjective and objective measures, as well as contextual and personal factors.

In conclusion, although both objective (population/contextual) macro and micro (personal) level factors and indicators of QoL are higher in Spain than in Mexico, subjective appraisal of the quality of life and life satisfaction are higher in Mexico than in Spain. Since, this research project might serves as a support for several political recommendations for improving life conditions among the elderly in Colima (Mexico), its results also underline the importance of taking into consideration a multidimensional concept of QoL including objective and subjective personal and contextual measures and indicators.

[*] This chapter has been written under the auspices of the FONCICYT (European Union and Mexican States), CASOENAC-094670 Research Project. All correspondence can be sent to Prof. Dr. R. Fernández-Ballesteros.- Dept. of Biopsychology and Health. Autonomous University of Madrid. Campus Cantoblanco. 28049-Madrid (Spain) (r.fballesteros@uam.es)

INTRODUCTION

Quality of Life (QoL) is a relatively new concept which emerged as a scientific label at the end of the sixties and its traces can be found throughout several scientific data bases. The importance, multicontextuality, and growth of QoL literature was assessed by looking at the number of citations in several scientific data bases (Urban, Biosis, Medline PsycLit and Sociofile; see Fernández-Ballesteros 1998, 2010). From these studies, it can be concluded that at the beginning of the seventies, there were no more than one hundred references to QoL, but forty years later, Sociofile (sociological scientific literature data base) had increased the citations in this field from 11 to almost 300; PsycInfo (the well known source of psychological publications) runs from 8 to close to 600, and finally, publication sources in the field of medicine and health such as Pubmed, increased citations of QoL and aging from 100 to more than 5000 (Fernández-Ballesteros, 1998, 2011a.). It can be concluded that, in the field of aging, QoL is a keyword used as a scientific concept and which spreads out in bio-medical and health, socio-political and psychosocial disciplines.

As pointed out elsewhere (Fernández-Ballesteros, 2011a), from a semantic point of view, "quality" corresponds to "fineness or grade of excellence," as specified in the entry in Webster's (Webster's Dictionary, 1986); "life" is a broad category that includes all living beings (as distinct from inorganic objects), but more specifically, QoL refers to *human life*. Therefore, briefly, QoL is concerned with the positive characteristics of human life.

After reviewing a variety of models of QoL, Brown, Bowling and Flyn (2004) distinguished several types of *QoL components*: objective social indicators (e.g.: income, living conditions, etc.); subjective measures (e.g. satisfaction, happiness, etc.); social indexes (e.g.: crime rates, living conditions, etc.); satisfaction of human need measures (e.g.: self-esteem, self-actualization, etc.); psychological and personality characteristics (subjective well-being, life satisfaction, happiness, self-of coherence); health and functioning (e.g.: generic health measures, specific health problems); social health, social networks and support (e.g.: social interaction frequency, social satisfaction); social cohesion and social capital (e.g.: access to leisure, sports facilities, etc.), and environmental contexts ecologically (e.g.: physical and/or neighbourhood resources, etc.).

Although this heterogeneous set of factors are expressing a multidimensional conceptualization of a diverse nature (objective and subjective), and present at different levels (contextual vs. individual), other authors have defined QoL equivalent to *well-being* (Campbell, 1981), or to *happiness* (Veenhoven,1999) in the social domain, to *health status* in the bio-medical field (which uses the *Health-related QoL* concept – for example, Naughton and Wiklund, 1993), and to *life satisfaction* in the psychology domain (Palys and Little, 1983). Even, there are authors, such as WHO (1993, 1995), which had previously considered QoL as a multidimensional construct (with a diversity of components such as health, social relationships, environment, finances), reduced its measure to the subjective appraisal of those different components, therefore, transforming QoL into a subjective concept.

Many authors agree that QoL is in a pre-scientific state, considering it as an "abstract", "soft", "amorphous" concept (Birren and Dieckmann, 1991 pp. 344-345), as one that "has no fixed boundaries" (Hughes, 1990, p 47), that "has been exceedingly difficult to define (it) precisely" (Andersen, Davidson and Ganz, 1994, p.367) or that is "difficult to operationalize" (Lawton, 1991), and even as one whose "meaning is dependent of the user of the term"

(Fowlie and Berkeley, 1987; p.226), or it is "in the eye of the beholder" (Ziller, 1974). Walker (2005) summarizes these opinions stating that "QoL is a rather amorphous, multilayered and complex concept with a range of components –objective, subjective, macrosocietal, micro-individual, positive and negative– which interact together" (p. 3).

In fact, as Fernandez-Ballesteros (2011a) emphasized, there is much more consensus in what QoL is *not* as Birren and Dieckmann (1991) stated: QoL is not equivalent to quality of the environment, to quantity of material goods, to physical health status or to quality of health care, just as it is distinct from subjective constructs such as life satisfaction, morale or happiness (Campbell, 1981; Georg and Bearon, 1980; Naughton and Wiklund, 1993). As also Browne, et al. (1994) pointed out: "Quality of Life (QoL) is (the product) of the dynamic interaction between external conditions of an individual's life and the internal perceptions of those conditions" (p.235). Thus, the concept cannot be reduced to life's external conditions or to personal or individual characteristics, or even to one's perception of external conditions; nor, indeed, to any objective or subjective component of external or personal conditions. We totally agree with by Diener and Suh (1997) who emphasized that "…quality of life is a complex, multifaceted construct that requires multiple approaches from different theoretical angles. We encourage scientists from the various disciplines of social science to exploit the strengths of other's contributions in a collaborative effort. Instead of turf battles over who has the best indicator, each discipline needs to borrow insights about quality of life from the other fields" (p. 214).

In sum, taking an integrative approach, taking into consideration the diversity of factors involved in human life, we agree that QoL is a *multidimensional* concept integrating both *objective* and *subjective* conditions and which can be considered at different *multilevels,* from populations to individuals.

On the basis of several theoretical and empirical works, Fernández-Ballesteros and her associates (1993, 1996, 1998, for a review see Fernández-Ballesteros, 2011a) arrived at a simple and parsimonious classification system of the most general (commonly accepted), multidimensional components of QoL in old age, classifying them into two broad multi-level multi-dimension axes: population (or contextual) versus individual (or personal) units of analysis, and objective versus subjective nature of those multi-dimensional components analyzed (see Fernández-Ballesteros, 1993, 2011a, b).

Figure 1 shows some examples of the commonest multidimensional ingredients of QoL in old age, indicating the unit level, that is, whether they refer to population/contextual (aggregate indicators) or to the individuals, and whether the conditions examined are objective or subjective in its nature (see: Fernández-Ballesteros, 2011).

Box 1 includes all population/contextual and objective aspects of the quality of life, such as environmental and physical factors (latitude, climate, residential facilities, etc.), economic factors (rent per capita, pension systems, micro-credit facilities, etc.), social factors (adult education, social networks, social services availability, etc.) and health factors (life expectancy, disability free life expectancy, health services, etc.).

Box 2 lists conditions attributed to a given society as reported perceptions of a group of individuals, social stereotypes about ageing or collective self-efficacy, aggregate well-being or subjective health which could be considered as QoL-related conditions.

Box 3 contains all personal or individual conditions cited by experts as ingredients of QoL that can be considered objective, such as demographic factors (age, gender, marital status), economic factors (income, economic resources), social factors (family or social

support), functional abilities (Activities of Daily Living, ADL, or Instrumental Activities of Daily Living, IADL), health conditions (medical records, prescriptions, days in hospital, etc.) or physical fitness (balance, strength, BMI, etc.).

Unit / Nature	POPULATION/ CONTEXTUAL	INDIVIDUAL
Objective	1 -Demographics (aging rates, density…) -Physical factors (latitude, residential facilities, protective assistance…) -Economic factors (IPC, pension system…) -Social factors (social networks, social services availability….). -Equality legislation. -Health factors (life expectancy, disability free life expectancy, health security system…). -Disability/ability prevalence in old age.	3 -Demographic characteristics (age, sex, education, SES…) -Physical conditions (home, residence, neighbourghood..) -Economic factors (income…) -Social factors (family support, social netwprk…) -Functional abilities and activity (ADL…) -Health conditions (medical records, prescriptions, days spent in hospital…) -Physical fitness (balance, strength, BMI)
Subjective	2 - Any collective or social perception such as stereotypes about aging, social values (individualism versus collectivism)	4 -Subjective conditions such as well-being, life-satisfaction, control perception, etc. -Any personal appraisal about his/her conditions in box 2. or about external conditions in box 1

Figure 1. Classification system for most common factors of QoL in old age. (from Fernandez-Ballesteros, 1993).

Finally, Box 4 deals with subjective conditions cited as QoL factors, such as life satisfaction, well-being or perception of control, together with any other subjective appraisal of external or personal factors, such as how the individual perceives both contextual and individual aspects of the quality of life (e.g., satisfaction with health services or satisfaction with personal health conditions).

Let us give some examples of measures of QoL. Following our argument, from the population perspective, QoL would refer globally to a given *universe*, covering a territory and/or society or a given context. A good example of multidimensional population measurement is *The Economist QoL Index*. This index was developed in an effort to remedy the shortcomings of Life Satisfaction Survey measures, which, it was argued, reduced QoL to happiness, life satisfaction or other subjective conditions (that is, a portion of subjective life). A set of QoL multidimensional domains and indicators were selected: material well-being (GDP per capita); health (Life Expectancy at birth), political stability and security (The Economist measure), family life (divorce rates), community life (church or union participation) climate and geography (latitude), job security (unemployment rate), political freedom (average index of civil and political liberties), and gender equality (average ratio of men/women salaries). All these domains and indicators can be placed in Box 1 and 2.

From an individual perspective, many instruments have been developed (for a review see Fernández-Ballesteros, Maciá and Zamarrón 1996, 2007). Among them all, the WHOQOL (1993, 1995) has been the one with the most extended use in Latin America. Although it has

six multidimensional domains (physical health, psychological, independence, social relationships, environment and spirituality) all those domains are assessed through the person´s appraisal; therefore it is measuring the subjective appraisal covering only subjective aspects of QoL (that is reducing QoL to components in Box 4).

The CUBRECAVI ("Short Quality of Life Questionnaire," Fernández-Ballesteros and Zamarrón, 1996, 2007), which is also widely used in several Latin American countries is based on a multidimensional concept of QoL containing both subjective and objective components. It includes nine domains assessed through objective and subjective questions: Physical and mental health (objective and subjective health); Social integration (social network size and social satisfaction); Functional abilities; Activity and leisure; Life satisfaction; Social and health services (availability and satisfaction); Environmental quality (subjective appraisal of physical characteristics); Education; and Income.

The CUBRECAVI shows a high internal consistency and an internal validity of its domains, and a high sensitivity to intervention. Furthermore, its raw scores can be converted into norms (available by age group and by living conditions).

Finally, the CUBRECAVI allows the weighing of individual preferences and also asks about the individual´s overall appraisal of his/her quality of life. In sum, all domains can be placed in Boxes 3 and 4.

Summarizing, there is a consensus that QoL in old age can refer to different "units" (from contexts or populations to individuals) and embracing health, functional status and activity levels, social, economic, and environmental components assessed, most of them, objectively and subjectively, as well as subjective conditions such as perceptions, evaluations, and satisfaction of population, context and individual levels which can be classified into the 4 different quadrants on the proposed classification system in order to assess the Quality of Life in Mexico and Spain within the CASOENAC Project complementing the CUBRECAVI, as an individual set of measures, with other indicators of QoL of both contexts.

CASOENAC PROJECT

CASOENAC (Socio-demographic Change and Active Aging: Scientific Contribution to Public Policies) emerged as a European Union-Mexican States Agreement of collaboration under a Consortium of the Health Department of the State of Colima, the University of Colima, and the University of Guadalajara (Mexico), the Autonomous University of Madrid and the Academia de Yuste (Spain), and the University of Heidelberg (Germany).

The *general objective* of this Project has been: "to develop gerontological knowledge in order to provide high quality bio-psycho-social services to the Colima State elderly people". The Subproject on Quality of Life was developed by the University of Guadalajara and the Autonomous University of Madrid under the following *specific objective*: "to assess the Quality of Life of the elderly making Regional and European comparisons". This article reports the results obtained trying to measure population and individual QoL.

METHOD

The Context

In order to compare people from two different countries, before examining the individual's QoL, it is important first to examine indicators at population levels. Geographically, the two contexts (region and province respectively) assessed in this study are shown in Figure 2. The main target population in this study was Colima State, therefore, the Spanish sample was selected in Alicante, a province with some similarities to Colima, taking into account some geographical characteristics of both territories: both are located under the ocean, they have broad touristic resources, they have comparable comparisons with their respective countries.

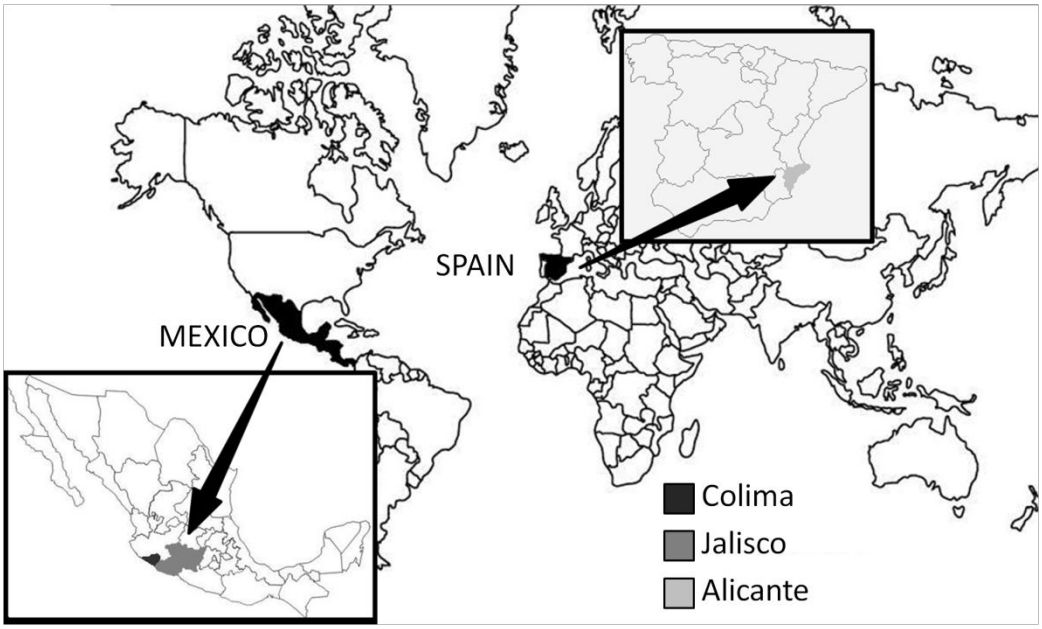


Figure 2. Geographical location from where the sample has been collected.

Since it is highly difficult to have disaggregated data for Colima and Alicante, we are going to examine the Mexico and Spain population QoL indicators through several sources of data. First of all, taking the Economist QoL Index data for 100 Countries around the world, using a 10 point Scale, Mexico scored 6.766 being in the 32nd place, and Spain scored 7.727 being in the 10th position. Secondly, we have also collected some population statistics from three different data bases: The World Health Report (WHO, 2000), United Nations Development Programme (2000), Word Values Survey (2005, 2007).

In table 1, not only objective aspects are shown (i.e. GDP, Life expectancy, Adult literacy rates) but also subjective ones (i.e. Life satisfaction, subjective health, happiness).

Table 1 shows that even though all objective measures are better in Spain than in México (i.e. the Disability Free Life Expectancy is longer in Spain than in Mexico), Mexican people report better scores in the subjective appraisal of QoL (i.e. Mexicans report more happiness than Spanish people).

Table 1. Population data of subjective and objective factors of QoL

Variable/Country	MÉXICO	ESPAÑA
OBJETIVE FACTORS of QoL		
GPD per capita	7.704	16.212
Life expectancy at birth	72,3	78,1
Males, Life expectancy at birth	71,0	75,3
Females, Life expectancy at birth	77,1	82,1
DFLE Total at birth	65,0	72,8
Males, DFLE at birth	64,4	69,8
Males , DFLE at 60	14,7	16,8
Females, DFLE at birth	67,6	75,7
Females, DFLE at 60	16,8	20,1
Males, Expectation of disability at birth (years)	8,6	5,5
Females, Expectation of disability at birth (years)	9,6	6,4
Males, % years with disability	12,2	7,3
Females,% years with disability	12,4	7,7
Adults literacy rate	90,8	97,4
SUBJETIVE FACTORS of QoL		
Life Satisfaction	7,41	7,13
Positive affect	2,68	1,59
Negative affect	1,30	0,89
Affect balance (Positive-Negative)	1,38	0,70
Subjective health	2,36	2,35
Happiness	3,49	3,05
Disability Free Life Expectancy (DFLE)		

* The World Health Report (WHO, 2000), United Nations Development Programme (2000) and Word Values Survey (2005, 2007).

Finally, it would be important to deduce whether age is influencing those subjective aspects of QoL in each country. So, data collected from the Word Values Survey show to what extent as age increases, “happiness” and “subjective health” decrease, but this happens significantly in both Mexico and Spain (Table 2).

According to the data collected from this study (Word Values Survey, 2005, 2007) and taking into account only people who were over 65, we found that although differences between Spain and Mexico in “subjective health” were not significant, the Mexicans reported significantly better “Happiness” than Spaniards (Table 3), as we have pointed out before taking into consideration the general population.

The data reported illustrates once again the importance of considering objective aspects of QoL and not only subjective conditions. In this Project, if we had considered only subjective characteristics we would not have developed any proposal to improve QoL of older Mexican’s from Colima.

Table 2. ANOVA to gauge the differences between age groups in two variables: "Subjective health" and "Happiness"

COUNTRY			M	SD	F	Sig. (2-tailed)
MEXICO	Subjective health*	15-24	3,08	,696	23,516	,000
		25-34	2,96	,748		
		35-44	2,81	,790		
		45-54	2,81	,808		
		55-64	2,51	,845		
		65+	2,36	,855		
	Happiness*	15-24	3,54	,625	7,937	,000
		25-34	3,59	,595		
		35-44	3,51	,644		
		45-54	3,49	,694		
		55-64	3,30	,799		
		65+	3,29	,731		
SPAIN	Subjective health*	15-24	3,39	,571	77,647	,000
		25-34	3,25	,604		
		35-44	3,14	,559		
		45-54	2,98	,567		
		55-64	2,81	,607		
		65+	2,35	,736		
	Happiness*	15-24	3,18	,547	10,141	,000
		25-34	3,16	,493		
		35-44	3,08	,380		
		45-54	3,04	,426		
		55-64	2,99	,526		
		65+	2,90	,510		

Table 3. Independent-sample T to gauge the differences between Mexico and Spain in two variables: "Subjective health" and "Happiness"

People 65+	PAIS	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Subjective health	Mexico	129	2,36	,855	,133	,894
	Spain	249	2,35	,736		
Happiness	Mexico	131	3,25	,778	4,761	,000*
	Spain	250	2,89	,523		

The Participants

The sample was recruited from people aged over 60 who live in the Alicante region (Spain), Jalisco[1] and Colima States (Mexico). The sample has been collected by the random routes sampling method.

The total sample consisted of 1817 participants 60 years of age and older (n = 1199 Mexico, Spain n = 618). The mean age is 70.19 years (SD 7.97) in Mexico and is 71.81 years (SD 9.97) in Spain (p <.001). In both countries, the proportion of women was higher than men (54.6% and 53.1%). Regarding marital status, in Mexico there were 49.2% married and 34.4% widowed, while in Spain most of the participants were married 65.5% and 27.8% were widowed (Table 4).

Table 4. Socio-demographic data of the participants

Variable	Mexico (n= 1199)	Spain (n= 618)	p-value
Age, years (Mean ± SD)	70.19 ± 7.90	71.81 ± 7.97	.000 [a]
60 – 64	29.4 (352)	22.3 (138)	.016 [b]
65 – 69	22.4 (269)	22.8 (141)	
70 – 74	21.0 (252)	22.0 (136)	
75 – 79	11.8 (142)	13.9 (86)	
80 +	15.3 (184)	18.9 (117)	
Gender, % (n)			
Women	54.6 (655)	53.2 (329)	.572 [b]
Men	45.4 (544)	46.8 (289)	
Marital status, % (n)			
Single	6.6 (79)	4.4 (27)	.000 [b]
Married	49.2 (590)	65.5 (405)	
Widow/er	34.4 (413)	27.8 (172)	
Divorced	4.0 (48)	1.3 (8)	
Separated	5.8 (69)	1.0 (6)	
Number of people who live with (Mean ± SD)	3.40 ± 2.34	2.19 ± 0.99	.000 [a]
Employment situation			
Currently working	23.6 (283)	4.5 (28)	.000 [b]
Retired / Pensioner / Disabled	26.3 (315)	65.4 (404)	
Unemployed	15.1 (181)	2.8 (17)	
Housewife	35.0 (420)	27.3 (169)	
Way of working (present or past)			
Self-employee	27.9 (335)	19.3 (119)	.000 [b]
Employee	44.8 (537)	80.7 (498)	
Not applicable	27.3 (327)	0.0	

[a]= t test for independent samples, [b]= Chi-square test.

The number of people living at home was also significantly higher in Mexico (Mean=3.4; SD = 2.3) than in Spain (Mean= 2.19; SD = 0.99). The current employment situation was also

[1] Since CASOENAC had the objective not only to make comparisons between Colima and Spain, but among Colima and another Mexican State, Jalisco, two representative samples from Colima and Jalisco States were recruited. Since minor differences between Colima and Jalisco were found, here we are only referring to differences between Mexico (both States) and Spain.

different in both countries. In Spain, most were pensioned or retired (65.4%), in Mexico they were only 26.3%, while 23.6% were currently working and 15.1% were unemployed, compared with 4.5% and 2.8 % respectively in Spain. The majority of the elderly in Spain had worked in their lives as employees (80.7%), compared with 44.8% of Mexicans, as 27.9% were self-employed.

Instrument and Procedures

CUBRECAVI ("Short Quality of Life Questionnaire," Fernández-Ballesteros and Zamarrón, 1996, 2007) was the instrument selected to assess QoL in this study. It includes nine domains assessed through objective and subjective questions. The first domain is "Physical and mental health". It assesses subjective health by asking: "In general, how do you rate your health state?" and objective aspects by asking about the frequency of 22 different pains and physical symptoms (i.e. headache, pain in legs, urinary incontinence, etc.) and mental symptoms (i.e. memory problems, being lost, etc.).

The second scale is "Social integration". It is assessed *objectively* by asking about family members and friends contact frequency (i.e. children, grandchildren, neighbors …) and *subjectively* by asking to what extent the individual is satisfied with each relationship he/she has. "Functional abilities" is the third domain asking about various difficulties in performing daily life activities. The fourth domain, "Activity and leisure" includes *objective data* asking about the frequency of doing physical activity or sport, as well as to what extent leisure activities are performed (i.e. going to the cinema, doing errands, taking care of their grandchildren…). Also, subjective *data* is collected by asking for the individual´s satisfaction in spending his/her time. "Life satisfaction" is assessed through a *subjective scale* asking about the general appraisal of life.

The sixth domain is "Social and health services" consisting of two items, one related to the frequency of attending these services (*objective*) and the other one related to the satisfaction with them (*subjective*). "Environmental quality" assesses the frequency of some environmental elements (i.e. noise, amenities, luminosity…) and the general satisfaction with them. "Education" and "Income" are both objective scales, by asking for the number of years they received a formal education and the total monthly income received in home. Finally, the CUBRECAVI includes a question asking about his/her appraisal about his/her QoL.

A review of the instrument has been done, adding some little changes and doing some language adaptations for the application in the Mexican sample. From the data of this sample, psychometric analysis (internal consistency and construct validity of its domains) was preformed following the analysis done by Fernández-Ballesteros and Zamarrón (1996, 2007). Fernández-Ballesteros, Arias-Merino, Santacreu and Ruvalcaba, 2011).

Reliability analysis has been assessed by internal consistency; Cronbach´s alpha levels run from medium ("Physical and mental health" scale's α=.67) to high ("Functional abilities" scale's α=.84), only one scale ("Social integration") yielded a low alpha coefficient (α=.45). These results are similar to that found by the original CUBRECAVI ("Social integration" scale's α=.31, "Physical and mental health" scale's α=.70 and "Functional abilities" scale's α=.92). Construct validity was tested by an Exploratory Factor analysis (using principal component and Varimax rotation). The variance explained was 62.16% and 65.44% by Mexico and Spain respectively.

The factors obtained were congruent with the theoretical ones raised in both samples. The variance explained is lower than the one explained in the original CUBRECAVI (78.2%), but the factor structure is similar to the one found by Fernández-Ballesteros and Zamarrón (1996, 2007).

Last, but not least, factor convergence analysis showed that the seven factors found in each country were convergent between them (all values equal to or greater than 0.9), which means that QoL structure is closely similar in Spain and Mexico. Nevertheless, in spite of this factorial congruence among countries, there are two indicators that are loading differently in Spain and in Mexico. Thus, Life satisfaction and Subjective appraisal of quality of life are loading in the same factor in the Mexico sample, but in the Spanish sample, Life satisfaction is loading in the Health factor and Appraisal of the quality of life is loading in Education and Income.

Finally, the CUBRECAVI was administered following the Manual by trained interviewers individually in the subject's home.

RESULTS

Health

A comparison among subjective, objective and mental health between Mexico and Spain is shown in Table 5 and graphically in Figure 3. Regarding subjective health, no statistically significant differences between the two countries were found; satisfaction with their current health is between a little and fairly good.

Regarding objective health, differences were also not found. Participants from both countries reported the presence of symptoms and pain between sometimes and never. It was found that, on average, they were suffering from 5 symptoms or pain. In Mexico, the most reported symptoms were: standing to urinate and / or night urination (61.8%), bone, spine or joints pain (59.3%), weakness of legs (48%), fatigue for no apparent reason (48%) and headache (50.5%). In Spain, the most common were: bone pain, spine or joints (77.2%), standing to urinate and / or night urination (61.8%), weakness of legs (55.2%), gases (55.2%) and sleep disorders (50.3%).

Regarding mental health, significant differences were found between the countries (p=.000, t=- 4129, df=1479). The Spanish elderly reported better mental health than the Mexicans.

Table 5. Health comparison between Mexico and Spain

Variable	Mexico, (n= 1199) Mean ± SD	Spain, (n= 618) Mean ± SD	p-value [a]
Subjective health	2.61 ± 0.95	2.64 ± 0.92	.496
Objective health	3.40 ± 0.47	3.40 ± 0.39	.986
Mental health	3.02 ± 0.76	3.16 ± 0.63	.000

[a]= t test for independent samples, SD= Standard desviation.

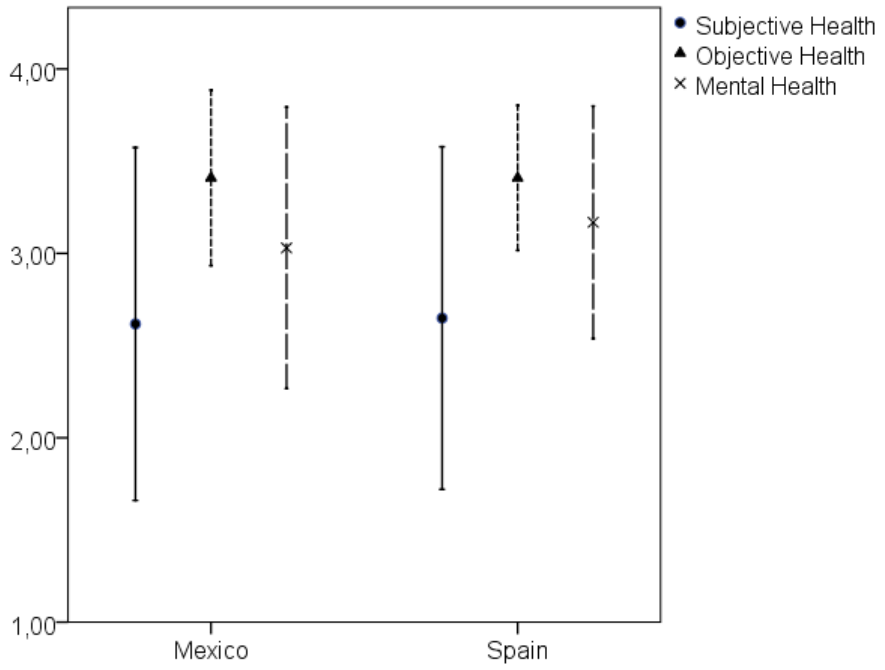


Figure 3. Health comparison between Mexico and Spain.

Functional Abilities

Concerning functional abilities, the Spanish elderly reported significantly less difficulty in performing the activities of daily living than the Mexican elderly (p=.000, t=-6084, df=1408; see Table 6). Specifically, the Mexican elderly had greater difficulty when taking care of their physical appearance, household activities, walking, and in performing outdoor tasks. The self-perception of functionality was also different between the two countries (Table 7), being more positive in Spain, where 83.1% and 43.9% of the participants considered that they were able to perform daily life activities very good (39.3%) and good (43.9%) in comparison with 73.3% compared of Mexican participants (very good 38% and good 35.3 %). Also, Mexicans significantly reported more difficulties when performing ADL in comparisons with Spaniards.

Table 6. Functional abilities

Variable	Mexico, (n= 1199) Mean ± SD	Spain, (n= 618) Mean ± SD	p-value [a]
Activities of daily living	3.41 ± 0.78	3.63 ± 0.67	.000
Taking care of their physical appearance	3.63 ± 0.80	3.79 ± 0.57	.000
Doing household activities	3.48 ± 0.86	3.58 ± 0.78	.014
Walking	3.28 ± 0.98	3.61 ± 0.80	.000
Performing outdoor tasks	3.38 ± 0.95	3.63 ± 0.78	.000

[a]= t test for independent samples, SD= Standard desviation.

Table 7. Considers that he/she can manage for themselves

Variable	Mexico, (n= 1199) % (n)	Spain, (n= 618) % (n)	p-value [b]
Very well	38.0 (455)	39.3 (243)	.000
Well	35.3 (423)	43.9 (271)	
Some	23.3 (279)	13.1 (81)	
Bad	3.4 (41)	3.7 (23)	

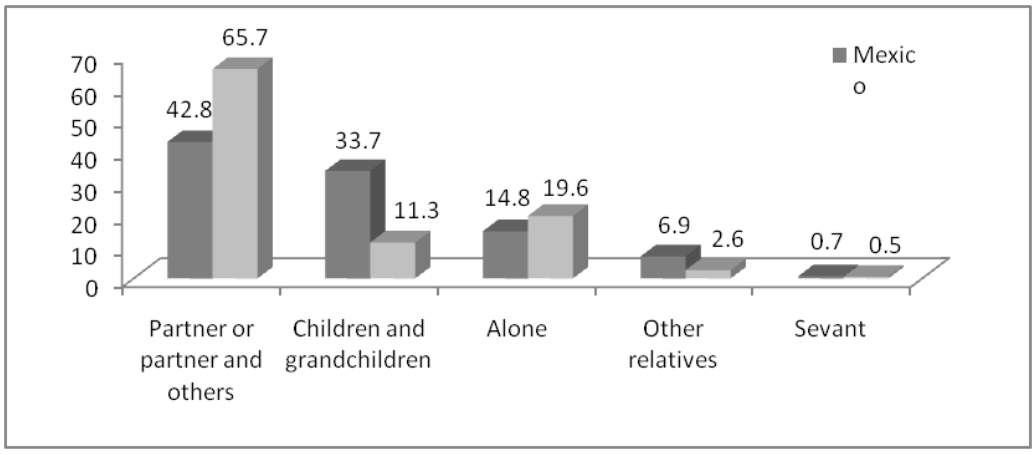
[b]= Chi-square test.

Social Integration

The family networks were different between both of the countries (p =.000), as shown in Figure 4. In Spain, most of the participants reported living with his/her partner (65.7%), while in Mexico there were only 42.8%, but 33.7% lived with their sons and grandsons, compared with only 11.3% of the Spanish. It was also found that a higher proportion of the elderly lived alone in Spain (19.6%) than in Mexico (14.8%). In both countries, most of the participants said they were satisfied with the relationship they had with the people they lived with (90.8% Mexico, Spain 98.8%, p=.000).

Regarding the frequency of family relationships not living in the home, or how often they met other people not living with them, the Spanish elderly interact more frequently with their sons (p=.000, t=-10,562, df=1461), grandsons (p=.000, t=-8801, df=1317), neighbors (p=.000, t=-10,074, df=1466) and friends (p=.000, t=-7551, df=1403) compared to the Mexican elderly. No differences were found regarding the frequency of relationship with other family members.

In addition, when they were asked about satisfaction regarding these relationships, the Spanish elderly expressed greater satisfaction than the Mexicans in their relationship with their spouse (p=.000, t=-5937, df=948), sons (p=.000, t=-5397, df=1637), grandsons (p=.000, t=-5333, df=1558), other family members (p=.000, t=-8447, df=1692), neighbors (p=.000, t=10976, df=1560) and friends (p=.000, t=-11.495, df=1390).



p=.000, Chi-square test.

Figure 4. Forms of cohabitation (who lives with).

Activity and Leisure

As shown in Figure 5, the physical activity performed by the participants of both countries was significantly different (p=.000). It was found that Mexicans, in comparison with the Spanish, were significantly more sedentary (29.2% vs. 13.4%) when performing exercises of low intensity and less frequency (30.4% vs. 24.8%). However, a significant number of Spaniards performed physical exercises of high frequency and intensity (24.5% vs. 11%). It should be highlighted that most of the Spanish elderly (50.8%) reported to perform a medium physical exercise frequency and intensity compared to 15.8% of the Mexican elderly.

Additionally, the Spanish participants reported doing more frequently leisure activities (p=.000, t=-3851, df=1815) and productive activities (p=.000, t=- 8479, df=1428) compared to the Mexicans. In both countries, the leisure activities that were reported as being more frequently performed were: watching TV (67.8% vs. 93.5%), listening to the radio (45.1% vs. 48.4%) and reading books, newspapers or magazines (38.5 % vs. 38.3%). Likewise, the productive activities that were performed more often were: shopping (Mexico 43.4% Spain 74.8%) and management or payments (40.5% vs. 64.2%). No significant differences were found regarding satisfaction; that is, participants expressed the same satisfaction with the way they spend their time (p =. 798, p =. 257, df = 1815), 77.3% were very satisfied in Mexico and 83.5% in Spain.

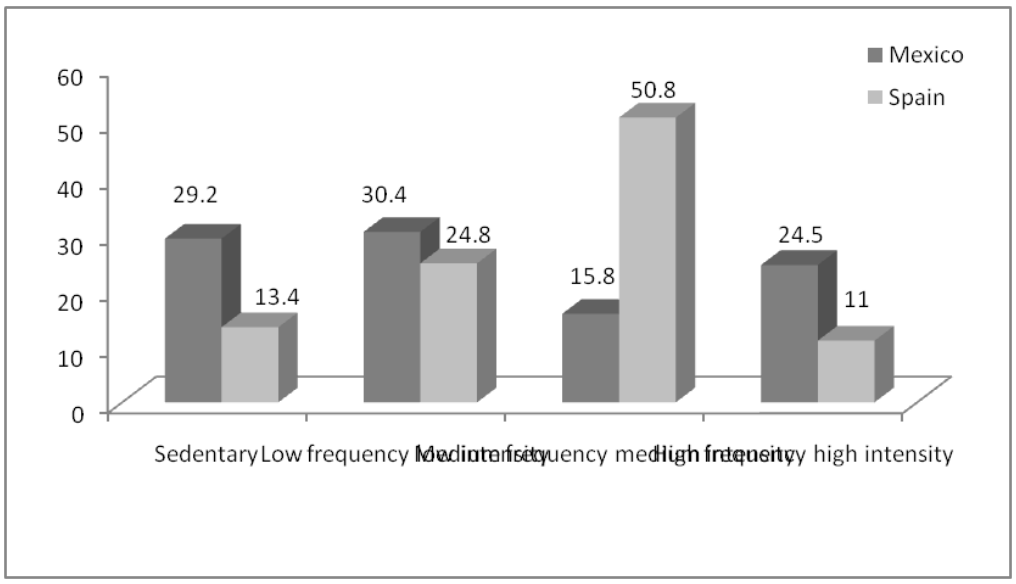


Figure 5. Physical activity performed during the last year.

Environmental Quality

Regarding satisfaction with housing, participants from both countries reported being satisfied to the same extent (p=.101, t=-1642, df=1291), proportionally, 83.2% of Mexicans

and 96.6% of Spanish expressed satisfaction with their home (p=.000). Specifically, the Spaniards reported a greater satisfaction than Mexicans regarding: noise/silence (p=.000, t =-10541, df=1771), temperature (p=.000, t=- 20386, df=1612), lighting (p=.000, t=-12000, df=1727), housekeeping (p=.000, t=-11445, df=1622), furniture (p=.000, t=- 9918, df=1814) and comfort (p=.000, t=-10047, df=1792) in their home.

Life Satisfaction

Mexican participants reported greater life satisfaction than Spaniards (p=.004, t=2854, df=1408). Specifically, it was found that 35.4% of the Mexicans experienced high satisfaction compared with 21% of the Spaniards. Most of the latter (60%) reported fair satisfaction, in contrast to 40.8% of Mexicans. Some satisfaction was reported by 21.7% of the Mexican elderly and 16% of the Spanish, while 2.1% and 2.9% (respectively) reported no satisfaction with life.

Education

Educational levels were lower in participants from Mexico than from Spain, the former had an average of 5.06 (SD = 4.73) years of education compared with 5.96 (SD = 4.37) of the latter (p=.000, t=-3884, df=1800). Specifically, it was found that 17.7% of Mexican elderly were illiterate compared with only 5.3% of the Spanish, 37.9% vs. 44.5% were literate, and 18.1% vs. 33% had completed primary education (p =. 000).

Income

In this scale, it must be pointed out that 209 Mexicans and 81 Spaniards did not answer. In Spain, people reported significantly more income than in Mexico. In a 9 point answer scale (from 0 to 8), Mexico's average income is 2.23 (SD = 2.39) while the Spanish one is 3.30 (SD = 1.42).

Table 8. Income

Variable	Mexico (n= 1199)% (n)	Variable	Spain (n= 618) % (n)
Less than $1,500	23.4	Less than 300 €	0.6
From $1,5001 to $2,500	19.5	From 301 to 450 €	5.0
From $2,501 to $3,500	12.1	From 451 to 600 €	19.7
From $3,501 to $4,500	8.8	From 601 to 900 €	29.3
From$4,501 to $5,500	4.5	From 901 to 1200 €	17.0
From $5,501 to $6,500	3.3	From 1201 to 1600 €	8.4
From $6,501 to $7,500	3.4	From1601 to 2100 €	4.2
From $7,501 to $8,500	1.8	From 2101 to 2700 €	1.8
More than $8,501	5.8	More than 2700 €	0.8
Did not know/ did not answer	17.4	Did not know/ did not answer	13.1

Total	100	Total	100

Table 8 shows that more than 50% of a Mexican's income is concentrated in the first three points of the scale, while a Spaniard's income is concentrated between points 3 and 5.

Table 9. Use and satisfaction on social and health services

Variable	Mexico, (n= 1199) % (n)	Spain, (n= 618) % (n)	p-value [b]
Frequency of use:			
Frequently	34.0 (407)	50.3 (311)	.000
Occasionally	46.3 (555)	47.9 (296)	
Never	19.7 (236)	1.8 (11)	
Level of satisfaction:			
Very satisfied	31.9 (342)	36.0 (221)	.000
Fairly	28.5 (306)	52.3 (321)	
Few	23.6 (253)	9.3 (57)	
Nothing	16.0 (171)	2.4 (15)	

[b]= Chi-square test.

Health and Social Services

The Spanish elderly reported a significantly higher use of health and social services - 50.3% reported to use them frequently compared with 34% of Mexicans. In contrast, only 1.8% of Spanish and 19.7% of Mexicans reported not to use them.

The satisfaction with services was higher with the Spanish elderly, 36% and 52.3% who said they were very and fairly satisfied, compared with 31.9% and 28.5% of Mexican elderly, respectively. A greater proportion of Mexican elderly (16%) than Spanish (2.4%) reported being dissatisfied.

Appraisal of Quality of Life

Finally, it was found that the Mexican elderly value their own quality of life significantly higher than the Spanish (p =. 000, t = 4775, df = 1550). Mexican participants assessed themselves as high 10.9%, medium 63.7% and low 25.4%, compared with 8.9%, 79.6% and 11.5% (respectively) of the Spanish.

DISCUSSION

First of all, it must be emphasized that, after a theoretical review, we have taken an integrative approach to QoL, trying to embrace a broad, multidimensional and multilevel concept of QoL. In other words, we consider QoL as a *multidimensional* concept integrating

both *objective* and *subjective* conditions and which can be considered at different *multilevels* from populations to individuals.

Regarding QoL at a population level, results shows that even though all of the objective measures are better in Spain than in Mexico, Mexican people report better scores in the subjective appraisal of QoL (i.e. Mexicans report more happiness than Spanish people). But, when we tried to investigate whether age is influencing the subjective appraisal, data from the Word Values Survey, showed that as age increases, "happiness" and "subjective health" decrease, significantly, in Mexico and in Spain. Finally, when we considered people over 65, we found that while differences between Spain and Mexico in "Subjective health" were not significant, Mexicans reported significantly higher "Happiness" than Spaniards (Table 3), as we have previously pointed out, before taking into consideration the general population of both countries.

Taking into consideration *individual QoL* assessed through the *CUBRECAVI*, no significant differences between Mexicans and Spaniards were found regarding subjective and objective *health*, but Spaniards reported better mental health than the Mexicans did. Also, Spaniards significantly reported to have less difficulty than Mexicans in their *Activity Daily Life* as well as being able to perform those activities better. *Social integration* in Spain and Mexico significantly differ, mainly because of the structure of the household; more Spaniards significantly live alone, or live with their partners, while more Mexicans live with their children and grandchildren. Nevertheless, both Mexicans and Spaniards are satisfied with the people with whom they live. According to that, the Spaniards reported significantly more frequent meetings of family members who do not live at home and friends than the Mexicans did. Also, the Spaniards significantly reported to be more satisfied with family and social relationships than the Mexicans did. Regarding *Physical activity*, the Spaniards perform significantly more frequent physical activities and sports and they are significantly more involved in leisure and productive activities than the Mexicans. No significant differences were found regarding appraisal about *environmental quality* among the Mexicans and Spaniards. Spaniards significantly reported higher use of *health and social services* and were more satisfied about services than Mexicans. This could be in accordance with the fact that in Spain, there is a universal public health system and a low percentage of Mexicans have such a system. Mexicans and Spaniards also significantly differ in their *income and education* which is in accordance with differences at the population level.

In spite of the fact that most of the domains of QoL support older Spaniards having a higher QoL than Mexicans, Mexicans significantly reported a higher *Life satisfaction* and, at the end, a higher *appraisal of Quality of Life*. In other words, it seems that the subjective appraisal about satisfaction with life and about quality of life are independent of the other factors, while in Spain they are highly related to them (both objective and subjective quality of life domains) (see, Fernández-Ballesteros, Arias, Santacreu y Ruvalcaba, 2011). This intriguing result is in accordance with the already mentioned Method Section: factor analysis yielded an independent factor of subjective appraisal of life and quality of life in Mexico, while in Spain, life satisfaction is related to health and quality of life is related to income and education. It is interesting to emphasize that Spain is fulfilling the assumption that education and income are behind QoL (Blanchfower and Oswald, 2011) but Mexico is fulfilling the QoL independence (Ashcanasy, 2011, Diener, Diener and Diener, 1995).

The issue about the international comparison in quality of life is discussed throughout literature; let us introduce some arguments claimed by the authors. First of all, after

examining data coming from international studies on subjective happiness (well-being, happiness, satisfaction and quality of life are taken almost as interchangeable terms), Blanchard and Oswlad (2011) conclude that a stable pattern has been replicated in several countries, but it is not supported by our results, as our results do not support : 1) *Age* distribution is U-shaped, that is, *happy people* are, among other conditions, disproportionately, *young or old* (not the middle-aged). This pattern is not supported in our study; from context data, age is negatively associated to happiness. As well as Pinquart (2001) pointed out from meta-analysis studies, a positive mood is negatively associated with age, in the same way that from our population data, happiness is decreasing as age is increasing both in Mexico and in Spain. 2) The profile of *happy countries* are, among other conditions, disproportionately *rich and educated* bringing data from the International Social Survey Programme or ISSP; the happiest countries are, in this order: Ireland (coefficient 0.2196), Switzerland (0.1677), and Mexico (0.1559), the United States (0.0939), Great Britain (0.0844), and New Zealand (0.0754). Nevertheless, there are contradictory results coming from other studies (Diener et al., 1995; The Economist, 2005; Vennhofen, 1999) which not support this profile. In our study, at a contextual level, people in Mexico yielded higher scores of happiness than in Spain, both for the total population and also for those older people. In the same line, at an individual level, Mexicans reported a higher appraisal of Life satisfaction and Quality of Life than the Spaniards did, but both at contextual and individual levels, Spaniards have a higher education and a higher income than Mexicans have.

Some authors interpret results about QoL as well-being and happiness, taking into consideration a cultural construct: individualism (other authors, such as Triandis 1995, include a bipolar dimension individualism versus collectivism). Veenhoven (1999) compares 43 nations in the early 1990's.

Individualization is measured by three aspects: 1) moral appreciation of individualism, 2) opportunity to choose, and 3) capability to choose. Next, overall individualization is measured by means of an expert-estimate. Quality-of-life in nations is measured by the citizen's subjective appreciation of life, as assessed by the question of happiness on the World Values Study. She calculated this index in 48 nations in 1990.

The more individualistic (1-10) countries were USA (10), followed by Canada, New Zealand, The Netherlands, and Switzerland (9). The less individualistic countries were China (2) and Nigeria (3). Taking into consideration this conceptualization, the Mexican individualism score was 5 yielding a happiness score of 2.95, while for Spain the individualistic score was 6 with a happiness score of 3.04. In sum, these interesting results from Veenhoven, from an “individualistic” position, do not highlight the differences found between Mexico and Spain in QoL.

In summary, although both objective (contextual) macro and micro (personal) level factors and indicators of QoL are quite higher in Spain than in Mexico, subjective appraisal of the quality of life and life satisfaction are higher in Mexico than in Spain. Much more research must be conducted in order to clarify the meaning of these positive concepts, including the quality of life, satisfaction, happiness or well-being, when they are used in any cross-cultural research and more sophisticated analysis must be conducted in order to make progress in this field.

In synthesis, both objective and subjective conditions assessed at different levels must be requested when QoL studies are conducted. When scientists, or policy makers, wish to

improve the way of living of a certain population, in no way can QoL be reduced only to subjective dimensions.

ENDNOTES

[1] These were the names of the scientific literature databases.

[2] Also, at the lower level of the population "context" ("Residence" "Day Care Centre", "Home", etc.), these can be assessed through aggregate or global indicators.

REFERENCES

Andersen, R.M., Davidson, P.L. and Ganz, P.A.(1994): Symbiotic relationships of quality of life, health services research and other health research. *Quality of Life Research, 3,* 365-371.

Andersson, L. (2005). Sweden: Quality of life in old age I. In A. Walker (Ed.).*Growing Older in Europe*. Berkshire, UK, Open University Press.

Anderson BJ, Cullen K, McKay S. (2005). Quality of life, family behavior, and health outcomes in children with type 2 diabetes. *Pediatr Ann, 34*, 722-729.

Antonovsky, A.(1983). The sense of coherence: Development of a Research Instrument. *Newsletter and Research Reports,* 1,1-11.

Ashkanasy, N.M. (2011). International Happiness. A Multilevel Perspective. *Academy of Management Perspective*. Special Issue: 23-27.

Birren, J.E. and Dieckmann, L. (1991): Concepts and Content of Quality of Life in Later Years: An overview. In J.E. Birren (Eds.): *The Concept and Measurement of Quality of Life in the Frail Elderly* pp 344-360. San Diego: Academic Press.

Blanchflower, D.G. and Oswald, A.J. (2011). International Happiness: A new view on the measure of performance. *Academy of Management Perspective*. Special Issue. pp 6-22.

Bowling, A. (1995) What things are important in people's lives? A survey of the public's judgements to inform scales of health related QOL. *Soc.Sci.andMed. 41*:1447-1462

Bowling, A. (2005). *Aging well: quality of life in old age*. Maindenhead: Open University.

Bowling, A., Seetai, S. Morris, R. and Ebrahim, S. (2002): Quality of life among older people with poor functioning. The influence of perceived control over life. *Age and Ageing Advance, 36*: 310-315.

Bronfenbrenner, V. (1977). Toward an experimental ecology of human development. *American Psychologist, 32,* 513-531.

Brown, J., Bowling, A, and Flyn, T (2003). *Models of quality of life: a taxonomy and systematic review of literature*. Shefield, University of Shefield, FORUM Project.

Browne, J.P.; O'Boyle, C.A.; McGee, H.M.; Joyce, C.R.B.; Mc Donald, N.J.; O'Malley, K. and Hiltbrunner, B (1994): Individual quality of life in the healthy elderly. *Quality of Life Research, 3*, 235-244.

Browne, J.P., O'Boyle, C.A., McGee, H.M. (2002) Individual quality of life in the helathy elderly. *Quality of Life Research, 3,* 235-244.

Burbank, P.M. (1992). An Exploratory Study: Assessing the meaning in life among older adult clients. *J. Gerontological Nursing, 18:* 19-28.

Campbell, A. (1981): *The Sense of Well-Being in America*. New York: McGraw-Hill.

Caprara, M.G. and Corraliza, J.A. (2008).Intervención y evaluación ambiental en la vejez. In R. Fernández-Ballesteros (Dir.). *Psicología de la vejez. Una psicogerontología aplicada. (Psychology of the elderly. An Applied geropsychology*. (pp. 281-305) Madrid: Pirámide.

Cook, T.D. (1985). Postpositivist critical multiplism. In S. Shotland and M.V. Mark (Eds.). *Social Science and Social Policy*. Palo Alto,CA.: Sage.

Diener, E and Suh, E (1997) Measuring quality of life: economic, social, and subjective indicators. *Social Indicators Research* 40: 189–216.

Diener, E, Diener, M. and Diener, C. (1995). Factors predicting the subjetctive well-being of nations. J. Personality and Social Psychology, 69, 851-864.

Diener, E. and Mark, E. (1999). National Differences in Subjective Well-Being. In D. Kahneman, E. Diener and N. Schwarz (Eds.). *Well-Being. The Foundations of Hedonic Psychology*. New York: Russel Sage Foundation.

Dumenci, L. (2003). Multitrait-multimethod matrices. In R. Fernández-Ballesteros (Ed.). *Encyclopedia of Psychological Assessment. Vol 2* (pp 610-614). London: SAGE.

Edlund M, Tancredi LR. Quality of life: an ideological critique. *Perspect Biol Med*. 1985 28(4):591–607.

Farquhar, M. (1995): Elderly people's definitions of quality of life. *Social Science and Medicine, 41,* 1439-1446.

Fernández-Ballesteros, R. (1993): The construct of Quality of Life among the Elderly. In E. Beregi, I.A. Gergely, and Rajzi, K. (Eds.): *Recent Advances in Aging and Science* (pp 1627-1630). Milano: Monduzzi Ed.

Fernández-Ballesteros, R. (1998). Quality of Life: Concept and assessment. In J.G. Adair, D. Bélanger and, K.L. Dion (Eds.). *Advance sin Psychological Science. Vol. I* (pp. 387-706). East Sussex (UK): Psychology Press.

Fernández-Ballesteros, R. (2002): Light and dark in the psychology of human strengths: The example of psychogerontology". In K. G.Aspinwal and U. M. Staudinger (Eds.) *A Psychology of Human Strength: Perspectives on an Emerging Field* (pp. 131-149). Washington DC: APA Book.

Fernández-Ballesteros, R. (2008). *Active aging. Contribution from psychology*. Gottingën: Hogrefe and Huber.

Fernández-Ballesteros, R. (2011a). Quality of Life in old life. Some problematic issues. *Applied Research in Quality of Life, 11*, 21-40.

Fernández-Ballesteros. (2011b) Positive Aging. Objective, subjective, and combined outcomes. *e-Journal of Applied Psychology, 7*, 22-30.

Fernández-Ballesteros, R. and Maciá, A. (1993): Calidad de vida en la vejez (Quality of life in the elderly). *Revista de Intervención Psicosocial, 5*, 77-94.

Fernández-Ballesteros, R. and Maciá, A. (1996): Informes de allegados sobre los mayores y de estos sobre sí mismos (Proxy's reports about the elderly and elders' self-reports). *Revista de Gerontología, 6*, 20-29.

Fernández-Ballesteros, R.y Zamarrón, M.D. (1996). New Findings on Social Desirability and Faking. *Psychological Reports, 78*, 612-614.

Fernández-Ballesteros, R., Zamarrón, M.D. and Maciá, A. (1997*): Calidad de vida en la vejez en distintos contextos* (Quality of Life among the elderly in different contexts). Madrid: INSERSO.

Fernández-Ballesteros, R., Zamarrón, M.D., Rudinger, G., Schroots, J.J.F., Hekkinnen, E., Drusini, A., Paul, C., Charzewska, J. and Rosenmayer, L. (2004): "Assessing competence: the European Survey on Aging Protocol (ESAP)". *Gerontology*, 50: 330-347.

Fernández-Ballesteros, R.; Kruse,A. Zamarrón, M.D. and Caprara, M.G. (2007). Quality of life, Life satisfaction, and Positive Aging. (2007) In. R. Fernández-Ballesteros (Ed.). *GeroPsychology*. *European Perspective for an Aging World*. (197-223). Gottingën: Hogrefe and Huber.

Fernández-Ballesteros, R. and Zamarrón, M.D.(2005). *Cuestionario Breve de Calidad de Vida (CUBRECAVI)*. Madrid: TEA Ediciones.

Fernández-Ballesteros, R., García, L.F, Abarca, D., Blanc, L., Efklides, A., Kornfeld, R., Lerma, A.J., Mendoza-Nuñez, V., Mendoza-Ruvalcaba, N.M., Orosa,T., Paúl, C., and Patricia, S. (2008) Lay Concept of Aging Well: Cross-Cultural Comparisons. *J*. *American Geriatric Society*,*56*, 950-951.

Fernández-Ballesteros, R., Arias E.D., Santacreu, M. AND Ruvalcaba, N. (2011*). Calidad de Vida: un estudio comparativo entre Colima, Jalisco (México) y Alicante (España)*. Unión Europea-Estados Mexicanos. Cambio Sociodemográfico y Envejecimiento Activo (CASOENAC).

Ferrucci, L. Heikkinen,E., Waters, E., Baroni, A. (1995). *Health and Quality of Life in Older Europeans*. Florence, INRCA and WHO.

Fowlie, M and Berkeley, J. (1987): Quality of Life-a Review of the Literature. *Family Practice*, *4*, 226-234.

Frisch, 1994 *QOLI Quality of Life Inventory*. *Manual and Treatment Manual*., Minneapolis, MN, Nacional Computer System.

Fry P.S. (2000), Whose quality of life is it anyway? Why not ask seniors to tell us about it? *Int J Aging Hum Dev, 50*, 361-383.

George, I. K. and Bearon, I. B. (1980) *Quality of life in older persons*. New York: Human Sciences Press.

Gergen, K.J. (1985). The social constructivist movement in psychology.*American Psychologist, 40,* 266-275.

Guba, E.G. and Linconln, Y.S. (1981). *Effective evaluation*. Beverly Hills, Sage Pub.

Hadorn D.C. and Hays, R.D. (1991). Multitrait-Multimethod Analysis of Health-Related Quality-of-Life Measures. *Medical Care*, *29*, 829-840.

Halvorsrud, L. and Kalfoss, M. (2007). The conceptualization and measurement of quality of life in older adults: a review of empirical studies published during 1994-2006. *European J*. *Aging*, *4*, 229-247.

Hilleras, P.K., Aguero-Torres, H., and Winblad, B. (2001) Factors influencing well-being in the elderly. *Geriatric Psychiatry, 14*, 361-365.

Hilleras, P.K., AgueroTorres, H., and Winblad, B. (2001) Factors influencing well-being in the elderly. *Current Opinion in Psychiatry, 14*, 361-367.

Hilleras, P.K., Jorm, A.F., Herlitz, A., and Winblad, B. (2001) Life satisfaction among the very old: A survey on a cognitively intact sample aged 90 years or above. *International Journal of Aging and Human Development, 52*, 71.

Hughes, B. (1990): Quality of Life. In S.M. Sheila and M. Peace (Eds.): *Researching Social Gerontology*. *Concepts, Methods and Issues*. (pp 46-58) Beverly Hills, CA: Sage.

Judge, T.A. and Kammayer-Mueller, J.D. (2011). Happiness as a Societal Values. . *Academy of Management Perspective*. Special Issue: 30-21.

Lawton, R.L. (1983): Environment and other determinants of well-being in older people. Gerontologist, 23: 349-357.

Moos and Lemke (1996). *Evaluating residential facilities: The Multiphasic Environmental Assessment Procedure (MEAP)*. Thousand Oaks: Sage Pub.

Namee, S.M. and Gergen, K.J. (1992). *Therapy as social construction*. Berverly Hills: Sage.

Naughton, M.J. and Wiklund, I. (1993): A critical view of dimension-specific measures of health-related quality of life in cross-cultural research. *Quality of Life Research, 2,* 397-432.

Palys, T.S. and Little, B.R. (1983): Perceived Life Satisfaction and the Organization of Personal Project System. *Journal of Personality and Social Psychology, 44,* 1221-1230.

Pinquart, M. (2001). Age differences in perceived positive affect, negative affect and affect balance. J. of Happiness Studies, 2, 375-405.

Raphael,D. Brown, I, Renwick, R. and Rootman, I. (1997): quality of life: What are the implications for health promotion?- *American Journal of Health Behavior, 21*, 118, 128.

Sampson, E.E. (1981): Cognitive psychology as ideology. *American Psychologist, 36,* 730-743.

Sternberbg, R.J. (1990). *Methaphors of Mind*. New York: Cambridge University Press.

The Economist (2005). The Economist Intelligence Units' Quality of Life Index. *The World in the 2005*. The Economist.

Tolman, E.C. (1941): Psychological Man. *Journal of Social Psychology, 13,* 205-218.

Veenhoven, R. (1996). Happy life expectance: A comprehensive measure of Quality-of-Life in Nations. *Social Indicators Research, 39*,1-58.

Veenhoven, R. (1999). Quality-of-life in individualistic society. A comparison of 43 nations in the early 1990's. S*ocial Indicators Research, 48,* 157-186.

Veenhoven, R. (2000). The four qualities of life. Ordering concepts and measures of the good life. *J. of Happiness Studies,1,* 1-39.

Triandis, H. C. (1995). *New directions in Social Psychology: Individualism and collectivism*. Boulder: Westview Press.

Walker, A. (2005b). A European Perspective on quality of life in old age. *European J. Aging, 2,* 2-13.

Webbster's Dictionary of English Language 1986 , New York: Gramercy Books.

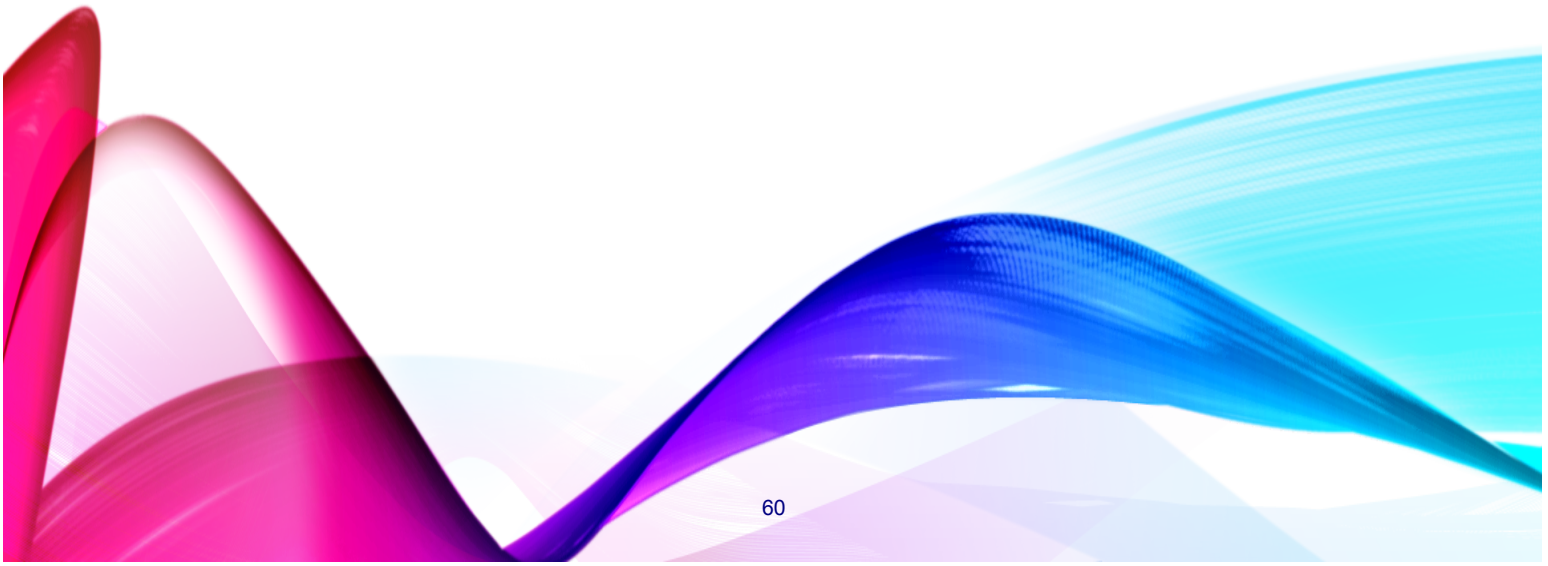
WHO (2002). *Active aging*. Geneva: World Health Organization.

WHOQOL (1993): Study protocol for the Worl Health Organization project to develop a Quality of Life assessment instrument (WHOQOL) *Quality of Life Research, 2,* 153-159.

WHOQOL Group (1995).The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. *Soc Sci Med, 41*, 1403-1409.

Ziller, R.C. (1974). Self-other orientation and quality of life. *Social Indicators Research, 1:* 301-327.

4. Revisión de antecedentes



4. Revisión de Antecedentes: Otros Estudios

En este apartado se presentan dos publicaciones. La primera es un capítulo de libro donde se realiza una revisión sistemática de programas de intervención diseñados para promover el envejecimiento exitoso.

La segunda publicación es un artículo original, donde se presenta específicamente el programa de intervención denominado “Soy Activo”, este estudio consistió en el diseño, implementación y evaluación de un programa cuya finalidad es promover el envejecimiento activo. En el artículo que se presenta se analiza su eficacia.

Este programa de intervención está directamente relacionado con el Programa Vivir con Vitalidad, ya que está inspirado en las dimensiones esenciales del modelo teórico de envejecimiento activo que subyacen al Programa Vivir con Vitalidad (ver apartado 5.1). En este sentido, “Soy Activo” se basa en la relevancia de los dominios relacionados a la salud tanto física como mental, concretamente se centra en la mejora de la funcionalidad a través de la promoción del ejercicio físico, y la implementación de hábitos nutricionales saludables; así mismo promueve un óptimo funcionamiento cognitivo a través del entrenamiento en técnicas para mejorar la memoria operativa, procesos atencionales y la velocidad de procesamiento. Cabe mencionar que este programa no es comprehensivo de todas las dimensiones teóricas del modelo de Vivir con Vitalidad, no incluye dentro de sus temáticas procesos relacionados con el Afecto y Control, y la Participación Social, en este sentido puede considerarse como un programa que se sujeta a los principios teóricos mínimos. Sin embargo, su relevancia radica en la pertinencia de sus contenidos, que son acorde a las necesidades elementales de promoción de envejecimiento activo en población mexicana, y puede considerarse como una primera aproximación hacia un programa más completo.

4.1 CAPÍTULO DE LIBRO:

Promoting Successful Aging. A Psychosocial Perspective

Referencia:
Caprara, M.G, Mendoza Ruvalcaba, N.M. (en prensa). Promoting Successful Aging. A Psychosocial perspective. En R. Fernández Ballesteros (Ed.), *Cambridge Handbook of Successful Aging.*

El envejecimiento además de ser un fenómeno poblacional es una experiencia individual. Por lo tanto, la comunidad científica, desde diferentes perspectivas disciplinares, ha dedicado esfuerzos importantes en diseñar e implementar estrategias para mejorar la salud y el bienestar durante el proceso de envejecimiento. La falta de consenso conceptual en las esferas académicas y científicas en torno al concepto de envejecimiento activo (exitoso, saludable) ha sido la principal limitación que requiere ser superada para poder unificar la implementación de intervenciones exitosas.

Este capítulo de revisión, analiza intervenciones psicosociales diseñadas con la finalidad de promover el envejecimiento exitoso. Para ello se ha realizado una búsqueda en la literatura en índices y bases de datos, finalmente de identificaron 19 programas de intervención que cumplían con los criterios establecidos. Los programas fueron analizados en matrices electrónicas de revisión de datos. En la revisión se discuten los programas de intervención en torno características bibliométricas, metodológicas, de perspectiva teórica-conceptual, contenidos e indicadores de impacto. Los resultados demuestran una gran variabilidad en la forma de promover de manera práctica el envejecimiento activo.

Las características diversas de las intervenciones subrayan la complejidad del fenómeno del envejecimiento activo o exitoso, así mismo se destacan los retos y potenciales barreras para fortalecer programas de intervención enfocados en la promoción de la salud y del envejecimiento activo.

"Promoting Successful Aging: A Psychosocial Perspective"

María Giovanna Caprara,[1] Neyda Ma. Mendoza Ruvalcaba[2]

[1]Open University of Madrid, Department of Psychology & Health,

[2]University of Guadalajara CUTONALA, Health Sciences Department

"Population aging is first and foremost
a success story for public health policies
as well as social and economic development...."

Gro Harlem Brundtland, Director-General,
World Health Organization. 1999

Abstract

Aging in the 21st century is a challenge at the political, social, economic and health levels. Indeed, aging is not only a demographic phenomenon, but an individual and collective experience. Therefore, the scientific community dealing with the study of aging should identify and implement strategies for improving health and well-being during the aging process at several levels of analysis, and for engaging multiple disciplines. The lack of agreement in academic spheres regarding the definition of a positive way of aging (successful, active, healthy aging) has been a major limitation in the past that needs to be overcome in the future in order to conduct comprehensive and successful interventions.

The goal of this contribution is to review psychosocial intervention programs designed to promote successful aging. To this end, nineteen articles assessing the effectiveness of positive aging programs were identified. The objectives, contents, indicators, theoretical frameworks, methodologies and results of these programs are presented and discussed in this chapter.

Keywords: successful aging, psychosocial intervention programs, health promotion

Introduction

The world's population is currently experiencing a profound transformation towards a long-living society. Thus, in the coming years, professionals in charge of planning and implementing health services will be required to manage unprecedented levels of demand for interventions aimed at promoting healthy habits and satisfying the increased care needs of an older population. The knowledge that has been acquired in recent decades has enabled the development of programs specifically designed to prolong a life that is worth living and to postpone a variety of disabilities commonly associated with old age.

The notion of successful aging, in particular, has been crucial to promoting a view that acknowledges the value of aging and counteracts unfavorable stereotypes and prejudices. In particular, the notion of successful aging must overcome the undesirable connotations of adjectives associated with old age, such as weak, frail and decrepit, as well as the negative view of aging that has long prevailed in many sectors of society and even among health professionals. Instead, a focus on successful aging addresses the last stage of life as a transition whose quality largely depends on how people prepare to chart its course. Although decline can be taken as unavoidable, its course may vary significantly in pace and mode depending on the opportunities and capacities people have to make the best use of their potential.

In the following chapter, we will point to major theoretical changes that have occurred over the last decades and to major contributions that have laid the groundwork for the development of interventions designed to promote successful aging. In particular, we will focus on psychosocial contributions that have significantly contributed to re-conceptualizing the notion of aging well.

Theories of Successful Aging in the Literature

Although the notion of successful aging can be found in earlier literature, the concept gained salience in the last decades of the 20th century, in accordance with findings from longitudinal, cross-sectional, experimental and quasi-experimental studies. These studies pointed to the manifold bio-psychosocial factors that affect aging, the great plasticity of the

human brain, and the potential of the human mind. In addition, research in this field has provided growing evidence that aging is not associated solely with physical and psychological decline, but also with the value of experience and the possibility of further development (Baltes & Baltes, 1990; Fernández-Ballesteros, 2008).

Scholars like Havighurst (1961, 1963), Fries & Crapo (1981), Baltes & Baltes (1990), Atchley (1989), Ryff (1982, 1989), Rowe & Khan (1998), and Fernández-Ballesteros (2002a) have contributed empirical studies to the development of a new approach to aging that acknowledges the important contributions that old people may offer to society. This perspective has led to the need for policies and programs designed to prolong and sustain old people's positive engagement in their communities. This new perspective, along with the financial support of enlightened funding agencies like the MacArthur Foundation in the 1980s, brought about a 180-degree turn in the typical view of the aging process.

Rowe & Kahn (1997, 1998) provided both an empirical definition and a set of criteria to assess and promote successful aging: (a) a low probability of disease and disease-related disability, (b) high cognitive and physical functional capacity, and (c) active engagement with life. Following this model, specific programs were designed in order to promote successful aging, prevent illness and its associated disability, optimize psychological (especially cognitive) and physical function, and maximize commitment to life.

While acknowledging the unavoidable losses carried by aging in the physical and psychosocial domains, Baltes & Baltes (1990b) pointed to the assets old people may still have and outlined strategies conducive to people's optimal use of their strengths and resources. While changes have to be carefully examined under scientific scrutiny, a comprehensive understanding of the aging process requires a focus on strength and potential, and not simply on losses and decline. To this end, Baltes & Baltes' Selection, Optimization, and Compensation (SOC) model advances a broad definition of successful aging that rests on both objective and subjective criteria, and acknowledges the importance of individual cultural variations. According to the model, aging well reflects people's capacity to make the best of their lives by selecting activities, encounters and situations that

most suit their psychological and physical resources. Individuals may compensate for the unavoidable decline and weakness associated with aging by using the abilities and assets deriving from their life experiences. To this end, the social and cultural context may exert a crucial role in providing opportunities, reducing obstacles, providing models and incentives, and sustaining efforts to achieve optimal outcomes.

Fernández-Ballesteros (2008) has made clear that promoting successful aging requires situating the aging person in her/his historical social context and addressing its manifold expressions at both the social and individual levels. Aging is a multidimensional process whose manifestations and development reflect biological, psychological and sociocultural determinants that operate in various combinations at different ages, in different contexts, and across time. Because human beings are plastic organisms with broad adaptation and learning capacities, aging well largely depends upon learning to adjust and to respond properly to biological and social changes (Kliegl, Smith, &Baltes, 1989; Baltes, Freund, & Li, 2005). Countries with the highest socioeconomic levels have the highest life expectancy and expectancy of disability-free life, primarily due to preventive and promotional health programs (WHO, 2002).

The discovery of the great potential of the nature-nurture interplay and of the great plasticity of brain function has led to increased appreciation of the notable contributions of socio-environmental conditions and habitual behaviors to extending longevity (Kirkwood,2005; Staehelin, 2005; González-Pardo & Pérez-Álvarez, 2013). Thus, society and the sociopolitical context are important actors in the process by which a population ages well, or actively. It is likely that social and individual factors operate in concert in predisposing people to lifestyles that may amplify or mitigate the difficulties of old age. Thus effective interventions require changes in attitudes and habits and a strong commitment at both the collective and individual levels. Individuals can be responsible for their own aging process to the extent that the social and cultural environments allow them a large degree of freedom in charting their own life course.

Enabling people to improve their lifestyles through self-management can compensate for the unavoidable losses that accompany aging, mitigating their effects on adjustment and well-being, and is crucial to extending their healthy survival to even older

ages. Extensive evidence shows that disuse of one's abilities, lack of activity, overdependence and withdrawal account for decline, deficits and impairment in cognitive and physical fitness (Schaie, 2005). Thus, aging well can be achieved through activities and relationships that effectively allocate one's personal resources and take the greatest possible advantage of environmental opportunities. This implies both the ability to select the activities that enable individuals to optimize their assets and the ability to compensate for losses and impairments due to obsolescence and disuse through knowledge, activity and training (Baltes&Baltes, 1990; Schaie, 2005).

Pursuing Successful Aging through Healthy Habits, Cognitive Function, Control and Social Engagement.

Successful aging can be assessed by the degree of occurrence of four major conditions: health and independence, high physical and cognitive functioning, positive affect and control, social participation and engagement (Rowe & Kahn, 1998; Bowling &Iliffe, 2006; Fernández-Ballesteros, 2002b; 2008; Hank, 2011). Improving health, and preventing and/or delaying disability and disease, can be achieved by promoting lifestyles that avoid risky habits like smoking and include activities that preserve physical fitness (Hartman-Stein &Potkanowicz, 2003; Aldwin, Spiro, & Park, 2006). Elders with healthy behavioral lifestyles show four times less disability than those who smoke, drink too much, do not exercise, and are obese (Fries, 2002). Thus, promoting successful aging requires making people acknowledge the harmful effects of unhealthy habits such as smoking, poor nutrition and lack of physical exercise, and enabling them to abandon old habits and adopt new ones. Positive changes rest upon the individual's sense of purpose, efforts and capacities to align their daily behaviors with new, healthy goals.

Optimal cognitive function can be achieved through lifelong learning and by engaging in activities that exercise and enhance memory, judgment and problem-solving abilities (Hertzog, Kramer, Wilson, &Linderberger, 2009). Exercise and practice allow older adults to moderate the decline that is usually associated with aging by sustaining their access to new sources of knowledge and by enabling them to value their previous learning and experiences. Cognitive training has shown beneficial effects on improving cognitive skills (Calero, 2003), cognitive reserve, and general cognitive function. Cognitive training

plays a significant role in maintaining and enhancing the cognitive reserve that is necessary for normal functioning as well as for situations of brain damage. Cognitive reserve is considered a good measure and predictor of an individual's cognitive modifiability, and a good predictor of the course from normality to mild cognitive impairment to dementia in old age (Fernández-Ballesteros et al., 2007). It has been reported that people with low cognitive reserves show a steeper decline early in the process of deterioration compared to those with high levels of reserves, in whom this marked deterioration appears at the end of the process due to the protective role of their cognitive reserves (Lojo-Seoana, Facal, & Juncos-Rabadán, 2012).

In addition to cognitive factors, a growing body of research concerning aging and health has focused on individual differences in personality as the self-regulating system accounting for the manifold ways in which people manage themselves and interact with the outside world. This has led to a focus on the traits, self-beliefs, attitudes and habits that foster better adaptation to aging.

Researchers have identified a variety of self-referent constructs like self-esteem, life satisfaction and optimism as crucial to sustaining healthy habits and promoting successful aging (e.g., Diener& Chan, 2011; Hertzog et al., 2009; Warner, Shwarzer, Schuz, Wurm, &Tesch-Romer, 2012). People's judgments of their own lives and expectations for the future affect their habits, their interpersonal relationships, and the ways they acknowledge and manage the changes that occur in their physical and psychological functioning during the course of their lives (Warner et al., 2012). Several findings corroborate social-cognitive approaches that point to self-regulation, self-reflection and perceived self-efficacy as core personal determinants of optimal aging (Baltes&Baltes, 1990; Rowe & Khan, 1998; Keyes, 2007). Likewise, findings suggest that nurturing positive emotions like joy and pride may serve to balance negative emotions such as anxiety or depression and contribute to promoting elderly people's well-being (Frederickson & Losada, 2005; Lyubomirsky, King, & Diener, 2005). Finally, many models of aging agree on the importance of social relations, social competence and social engagement (Baltes & Baltes, 1990; Rowe & Khan, 1989;WHO, 2002). Studies have shown a strong and robust cross-sectional association between social engagement and disability, with socially active persons reporting lower levels of disability than their less active counterparts (Mendes de Leon, Glass, & Berkman,

2003). Empirical evidence attests to the positive link between social activity and participation and cognitive functioning (Park et al., 2007), although the protective effects of social engagement tend to diminish over time (Zunzunegui, Rodriguez, Otero, et al., 2007). These findings support the effectiveness of interventions aimed at widening older individuals' social networks and encouraging their social engagement in activities like volunteerism, lifelong education, arts and culture. Encouraging social relationships and pro-social behaviors may serve to improve social competence and to preserve a high sense of self-confidence and autonomy (Caprara, Caprara & Steca, 2003; Midlarsky & Kahana, 2007).

In summary, raising old people's awareness of, and responsibility for, their health is the key to enabling them to avoid risky behaviors and to pursue healthy lifestyles. Knowledge of healthy habits, however, must be accompanied by the capacity and will to align one's behavior with this knowledge. This requires self-efficacy, coping skills and effort, which, in combination with a positive orientation towards life, are conducive to the adoption of protective lifestyles and to the prevention of risk factors. Thus, the transmission of knowledge on the importance of physical activity, cognitive exercise and social engagement should be combined with learning experiences that directly attest to their benefits. Ultimately, it is a sense of personal mastery in managing their aging that enables people to cope effectively with frailties, loss and adversity.

Building on prior literature, four major domains of psychosocial functioning have been the target of interventions geared to optimizing aging: health, physical and cognitive fitness, personality aspects such as positive affect and control, and social participation and engagement (Fernández-Ballesteros, 2008). This four-domain model of aging well has recently been tested through multiple data and multiple methods (Fernández-Ballesteros et al., 2012b).

The Development of Psychosocial Programs Promoting Successful Aging.

A large variety of programs have been developed across the world to meet the needs of societies to encourage seniors to endorse healthy lifestyles and to preserve a satisfactory quality of life (Chi &Lubben, 1994; Tang et al., 2009; Mnich et al., 2013). Yet, the fact that most of these programs are community-based and rarely include systematic evaluations of outcomes represents a serious limitation that makes it difficult to achieve adequate comparisons of their effectiveness and generalizability. A further limitation concerns the clarity of the theories that form the basis of various interventions.

In reality, a comprehensive theory of successful aging should account for both individuals' development and functioning and for how society and culture impinge on peoples' psychological and physical well-being. Thus, it is not surprising that significant progress has been made by psychosocial programs that have addressed aging as an individual experience that engages the whole person and her/his social world, namely her/his body, mind, habits and social relations. While individuals' feelings, thoughts and actions are reciprocally determined and culturally and historically situated, aging well rests upon individuals' resources and efforts no less than upon others' expectations and reactions. Psychosocial programs can be delivered in group or individual sessions, with tailored or pre-designed contents, through self-help manuals and web pages, all aimed at transferring the knowledge and sustaining the motivation needed to anticipate and combat the various frailties and diseases associated with aging. An example of a program of this type is "Vital Aging" by Fernández-Ballesteros (2002b).

In the following section, we shall present an overview of the psychosocial programs representing the main strategies for promoting successful aging and conveying the sense of multidisciplinarity that is required to properly address the complexity of aging.

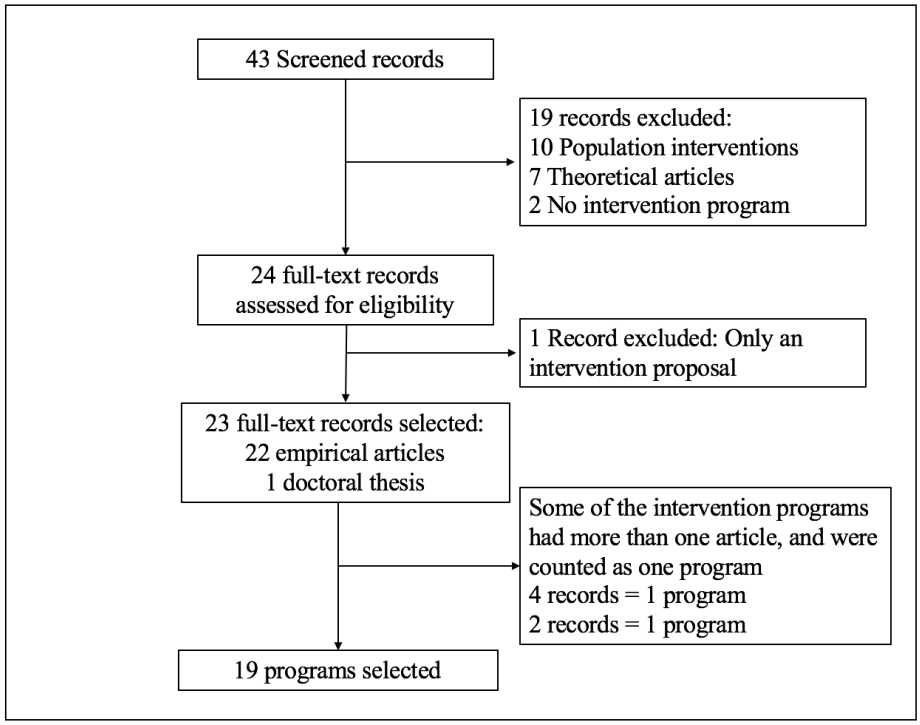
Reviewing Psychosocial Programs to Promote Successful Aging.

In order to identify published descriptions of psychosocial programs designed to promote successful aging, we conducted a literature search. The keywords selected were "intervention program", "successful aging", "active aging", "healthy aging", "aging well", "optimal aging", "positive aging" and "health promotion". The search was conducted on MEDLINE, Web of Science, PsycINFO, EBSCO, Proquest Central, CINAHL and AgeLine

between May 15 and November 15, 2016, with no language restriction. Articles were included in the review if they met the following criteria: i) the article referred to an intervention program; ii) the program had a psychosocial perspective; iii) the objectives included promoting successful aging (active, healthy, aging well, optimal, positive); iv) the characteristics of the intervention program were reported in detail; iv) the effectiveness of the program was assessed.

The first screening of the records was guided by the title, then by the abstract, and finally by reading the full text. This first screening produced 43 eligible studies. Nineteen records were excluded after a deeper screening, when it was deemed that the inclusion criteria were not fulfilled, and one additional record was excluded because it only included an intervention proposal. The final sample thus included 24 full-text records (22 articles and 1 doctoral thesis). Some intervention programs produced more than one record (for example, one program produced four records), but were counted as only one intervention program (See Figure 1). Finally, 19 intervention programs were included in the review, involving a total of 2,959 participants. See Table 1.

Figure 1. Study flow diagram.



Once the records were identified, the data were extracted and introduced into a review matrix for analysis; the data collected included bibliometrics, theoretical background (concept or terminology used to refer successful aging, disciplinary focus), methodology of the study (methodological approach, design, objective, participants, variables and outcomes), and intervention characteristics (name of the program, targeted audience, format, setting, domains involved, and strategies for implementation).

Table 1. Studies included in the review.

Program No.	Year	Program/Reference
1		*"Vital Aging"*
	2002	Fernández-Ballesteros, R. (2002b). *Vivir con Vitalidad*. Madrid: Pirámide.
	2004	Fernández-Ballesteros, R., Caprara, M. G., & García, L. F. (2004). Vivir con Vitalidad-M: Un programa europeo multimedia [Vital Aging-M: A European multimedia program]. *Intervención Social*, *13*, 63-85.
	2005	Fernández-Ballesteros, R., Caprara, M. G., Iñiguez, J., & García, L. F. (2005b). Promoción del envejecimiento activo: Efectos del programa Vivir con Vitalidad. *Revista Española de Geriatría y Gerontología*, *40*(2), 92-102.
	2015	Caprara, M. G., Fernández-Ballesteros, R., Alessandri, G. (2015). Promoting aging well: Evaluation of Vital-Aging-Multimedia Program in Madrid, Spain. *Health Promotion International*, *31*(3), 515-522.
	2016	Mendoza Ruvalcaba, N. M. &Fernández-Ballesteros, R. (2016). Effectiveness of the Vital Aging program to promote active aging in Mexican older adults. *Clinical Interventions in Aging*, *10*, 829-837.
2	2006	*"Optimal Aging Program"* Sikora, S. (2008). The University of Arizona College of Medicine Optimal Aging Program. *Gerontology & Geriatrics Education*, *27*(2), 59-67.
3	2007	Bode, C., De Ridder, D. T., Kuijer, R. G., &Bensing, J. M. (2007). Effects of an intervention promoting proactive coping competencies in middle and late adulthood. *The Gerontologist*, *47*(1), 42-51.
4	2010	*"Mental Fitness for Life"* Cusack, S. A. (2003). Mental fitness for life: Assessing the impact of an 8-week mental fitness program on healthy aging. *Educational Gerontology*, *29*(5), 393-403.
5	2012	Correa-Bautista, J. E., Sandoval-Cuellar, C., Alfonso Mara, M. L., & Rodríguez-Daza, K. D. (2012). Cambios en la aptitud física en un grupo de mujeres adultas mayores bajo el modelo de envejecimiento activo. *Revista de la Facultad de Medicina*, *60*(1), 21-30.
6	2013	Boyes, M. (2013). Outdoor adventure and successful aging. *Aging and Society*, *33*(4), 644-665.

7	2013	Foy, C. G., Vitolins, M. Z., Case, L. D., Harris, S. J., Massa-Fanale, C., Hopley, R. J., & Goff, D. C. (2013). Incorporating prosocial behavior to promote physical activity in older adults: Rationale and design of the Program for Active Aging and Community Engagement (PACE). *Contemporary Clinical Trials*, *36*(2013), 284-297.
8	2013	*"Gero-Health"* Lorenzo, T., Millan-Calenti, J. C., Lorenzo López, L., &Maseda, A. (2013). Efectos del programa educativo Gero-Health sobre el nivel de interiorización de conocimientos de prevención Y promoción de la salud en personas mayores. *Revista de InvestigaciónEducativa*, *31*(2), 502-515.
9	2014	Estebsari, F., Hossein, M., Foroushani, A. R., Ardebili, H. E., &Shojaeizadeh, V. (2014). An educational program based on the successful aging approach on health-promoting behaviours in the elderly: A clinical trial study. *Iranian Red Crescent Medical Journal*, *16*(4), e16314.
10	2014	Mastropietro, E. (2016). Clubes de memoria. Programas de Intervención Comunitaria en Salud para Adultos Mayores. *RevistaPsicología*, *33*(1), 15-32.
11	2014	*"Integrated Health Management Program"* Ahn, O., Gyeong, H., Chang, S. J., Cho, H., & Kim, H. S. (2014). Effect of an integrated health management program based on successful aging in Korean women. *Public Health Nursing*, *32*(4), 307-315.
12	2015	Canseco, M. (2015). Programa de intervención para envejecer con éxito dirigido a personas mayores de la ciudad de México. Retrieved from: http://www.tesisenred.net/handle/10803/310381
13	2015	Latorre, J. M. et al. (2015). Life review based on remembering specific positive events in active aging. *Journal of Aging and Health*, *27*(1), 140-157.
14	2015	*"I Am Active"* Mendoza-Ruvalcaba, N. M., & Arias Merino, E. D. (2015). "I Am Active": Effects of a program to promote active aging. *Clinical Interventions in Aging*, *2015*(10), 829-837.
15	2015	Santos, L.C. et. Al. (2015). Calidad de Vida de los mayors que participan en el grupo de promoción de la salud. *Enfermería Global,* 1 -11.

16	2015	*"Healthy Aging Mind Body Intervention"* Scult, M., Haime, V., Jacquart, J., Takahashi, J., Moscowitz, B., Webster, A., Denninger, J. W., & Mehta, D. (2015). A healthy aging program for older adults: Effects on self-efficacy and morale. *Advances in Mind Body Medicine*, *29*(1), 26-33.
17	2016	Jiménez, M. G., Izal, M., &Montorio, I. (2016). Programa para la mejora del bienestar de las personas mayores. Estudiopilotobasadoen la psicologíapositiva. *Suma Psicológica*, *23*(1), 51-59.
18	2016	*"Islamic Spiritual Progam"* Moeini, M., Sharifi, S., &Zandiyeh, Z. (2016). Does Islamic spiritual program lead to successful aging? A randomized clinical trial. *Journal of Education and Health Promotion*, *5*, 1-7.
19	2016	Newman, A. B., Dodson, J. A., Church, T. S., Buford, T. W., Fielding, R. A., et al. Cardiovascular events in a physical activity intervention compared with a successful aging intervention. The LIFE study randomized trial. Journal of the American Medical Association Cardiology, 1(5), 568-674.

Bibliometric results

The interventions for promoting successful aging included in this review were published between 2002 and 2016. The first intervention program identified was the "Vital Aging Program" (1), which has been applied successfully in several editions in Spain (Fernández-Ballesteros, Caprara, & García, 2004; Fernández-Ballesteros, Caprara, Iñiguez, & García, 2005a; Fernández-Ballesteros, 2005; Caprara, Fernández-Ballesteros, & Alessandri, 2015) and recently in Mexico (Mendoza Ruvalcaba & Fernández-Ballesteros, 2016). One study was reported in each of the following years: 2006 (2), 2007 (3), 2010 (4), and 2012 (5); three intervention programs were reported in 2013 (6,7,8) and 2014 (9,10,11), five in 2015 (12,13,14,15,16), and four in 2016 (17,18,19,1). Most of the studies were published in the English language.

In terms of the countries where the interventions were carried out, the results are diverse. Spain had the highest number of applied programs with 4 (1,8,13,17). One program was carried out in the Netherlands (3) and one in England (4). Six programs were developed in Latin America, including one in Brazil (15), one in Colombia (5), one in

Venezuela (10), and three different programs in Mexico (1,12,14), including an adaptation of the "Vital Aging" program (Mendoza Ruvalcaba & Fernández-Ballesteros, 2016). Four programs were implemented in the US (2,7,16,19), two in Iran (9,18), one in New Zealand (6), and one in Korea (11).

Theoretical background

The most used term to name the intervention programs was *successful* aging, followed by *active healthy* and *optimal* aging. Two programs used more than one term; the "Memory Club" (10) used two, and the "Optimal Aging Program" (2) used optimal, active, and successful as synonyms. See Table 2.

Although all the intervention programs had a psychosocial perspective, and most of them were delivered from a psychological perspective (11 out of 19 programs), some programs were delivered from another disciplinary perspective: five from medicine, one from gerontology, one from nursing, and one from a public health perspective. See Table 2.

Table 2. Terminology and discipline

Variable		n=	Program no.
Terminology	Successful	9	2,3,6,9,11,12,17,18,19
	Active	7	1,2,5,7,8,10,14
	Healthy	5	4,7,10 ,15,16
	Optimal	1	2
Discipline	Psychology	11	1,3,4,6,10,12,13,14,16,17,18
	Medicine	5	2,5,7,9,19
	Gerontology	1	8
	Nursing	1	15
	Public Health	1	11

Methodological characteristics

Regarding the methodological characteristics of the programs (see table 3), 17 out of 19 intervention programs used quantitative methods, one used qualitative methods (2), and one used both qualitative and quantitative (mixed) methods (6).

To classify the design of the studies, we referred to the classification proposed by Campbell & Stanley (1995). The randomized controlled trial used in nine studies (3,7,9,12,13,14,17,18,19) was the most common design; three of these studies included a follow-up at three (3), six (14) or twelve months (7). One study adopted a quasi-experimental design (1), and although randomization was not present, pre-post tests were conducted in experimental and control groups. Six studies included pre-post test comparison (4,5,8,10,11,16), and three studies included only post-test measurement in one experimental group (2,6,15).

Table 3.Method and design.

Variable		n=	Program no.
Methods	Quantitative	17	1,3,4,5,7,8,9,10,12,13,14,15,16,17,18,19
	Qualitative	1	2
	Mixed	1	6
Design	RCT	9	3,7,9,12,13,14,17,18,19
	Quasi-experimental	1	1
	Pre-experimental		
	Pre-post	6	4,5,8,10,11,16
	Post	3	2,6,15

RCT=Randomized controlled trial

Sample size varied among the studies, ranging from n=17 to n=817 participants, and all the studies and interventions were in accordance with common ethical standards and involved an informed consent.

Intervention characteristics

The target population in all the studies was community-dwelling older adults (60 or 65 years and over), except in the "Optimal Aging Program" (2), where college students were also participants in an intergenerational experience. The settings of the interventions were mainly senior centers or health houses. Professionals from diverse disciplines, mainly psychologists, gerontologists, geriatricians or nurses, delivered the interventions. The group session was the most common format of intervention, adopted by 16 out of 19 studies; only one program was individually implemented (4), and two interventions mixed group and individual formats (2,12).

For analytical purposes, the programs were categorized, considering first the strategy used to promote successful aging, then the outcome variables and their specific indicators. Strategies and outcomes were analyzed according to the four domains of successful aging listed above. Table 4 reports the strategies used to promote successful aging. The program was considered to be "unidimensional" or "multidimensional" depending on whether one or more domains of successful aging were addressed.

Following a unidimensional strategy targeting physical activity, Correa Bautista (2005) implemented an exercise program over twelve weeks (hour-long daily sessions) designed to improve physical performance and functional status.

Among unidimensional strategies targeting cognitive functioning, Mastropietro (2010) trained older adults in the use of mnemonics, cognitive stimulation, Sudoku and tangrams in "Memory Club." Cusack (2003) designed an eight-week mental fitness program to promote healthy aging. Latorre (2015) implemented life review techniques for remembering positive events in non-depressed older adults; the six-session program was designed for enhancing emotional well-being and thus active aging. The GERO-HEALTH program focused on knowledge and learning about active aging (Lorenzo, Millan-Calenti, Lorenzo López, & Maseda, 2013). Other programs focused on coping capacities (Bode, Ridder, Kuijer, & Bensing, 2007), taking advantage of experiences and practices from positive psychology (Jiménez, Izal, & Montorio, 2016), from psychotherapy and cognitive behavioral treatments (Scult et al., 2015), and even from training in spiritual skills (Moeini, Sharifi, &Zandiyeh, 2016)

Other programs focused on strategies related to social functioning and participation.

In Sikora (2006), the "Optimal Aging Program" aimed to expand the concept of aging to include the reality of healthy, active older adulthood, and to provide the opportunity for sharing experiences. Santos, Oliveira, Barbosa, Nunes, &Brasil (2015) centered their program on artistic and leisure activities for promoting quality of life, leading to healthy and active aging.

Table 4. Intervention strategies implemented by unidimensional and multidimensional intervention programs to promote successful aging. (Program number in parentheses)

Dimension	Unidimensional programs (n=12)	Multidimensional programs (n=7)
Behavioral (lifestyles)	Physical activity (5) Outdoor activity involvement: biking, camping (6)	Physical activity (1,7,9,11,12,14) Nutrition habits (1,9,11,12,14) Health promotion (1) Responsibility for health (9) Health education (11)
Psychological	Cognitive training (4,10) Behavioral change: promoting proactive coping competencies (3) Life review techniques (13) Education on prevention and health promotion (8,19) Psychological well-being promotion (17) Spiritual skills training: Islamic (18) Cognitive behavioral therapy (16)	Cognitive training (1,11,12,14) Behavioral change (9,7,14) Affect and control (1,11) Pro-social behavior (7) Education methods (9)
Social	Performing activities: leisure and artistic (15) Intergenerational experiences (2)	Social participation (1,12) Social interaction (9) Volunteerism (7) Social support (11)

Among multidimensional programs addressing various domains of aging well, the validity of the Vital Aging program (Fernández-Ballesteros 2002b) is well established (Caprara et al., 2013). Initially developed in 1996 as a face-to-face course at the Autonomous University of Madrid, the objective of the program is to promote active aging

using a variety of strategies. The program teaches basic knowledge about aging and promotes healthy lifestyle choices (physical exercise, nutrition). It trains individuals in strategies for optimizing cognitive function and compensating for potential cognitive declines. It also teaches older adults to optimize positive affect, emotion and control. Finally, the program promotes social relationships and social engagement throughout the life course by using new technologies. Using a variety of delivery versions (Face-to-Face, Multimedia, e-Learning, Open Course Ware, and the internet) and through several iterations, the program has proved to be an effective tool for promoting active aging across cultural contexts (Mendoza Ruvalcaba&Fernández Ballesteros, 2016).

Among other multidimensional programs (n=7), physical exercise and activity form the core of strategies that are recommended to promote successful aging due to their established and pervasive effects on mood, health and social inclusion (Ahn, Gyeong, Chang, Cho, & Kim, 2014). Cognitive and social strategies are also frequently included. For instance, the PACE program includes cognitive-behavioral counseling, pro-social behavior, and volunteering (Foy et al., 2013). Estebsari et al. (2014) include social interactions, nutrition, leisure activities as well as physical, mental and spiritual growth. Canseco (2015) includes nutrition techniques, cognitive training and social participation.

Table 5 shows the outcome variables and indicators taken into account by the intervention programs included in this review. On the behavioral lifestyles dimension, the most common outcome variable was physical activity, considered by 9 out of 19 programs. However, outcome indicators were diverse, with measures of frequency of exercise, strength, flexibility and balance being the most commonly used. Nutritional outcomes were considered in 8 out of 19 programs, mainly by anthropometric measures. Health status was also included as an outcome variable.

Outcomes in the domain of cognitive activity and training were measured by changes in cognitive function, including improvements in memory, executive function, processing speed and other specific cognitive functions. For outcomes in the personality dimension, most interventions pursued positive changes in affect, mood and emotional regulation; others targeted self-efficacy and control, coping skills and disposition (optimism). Awareness and knowledge of the aging process were also considered among the relevant outcomes of programs geared to promoting successful aging, given the

programs' role in combating inaccurate perceptions, prejudices, stereotypes and false beliefs. While social functioning and participation were adopted as outcome variables in 7 out of 19 programs, frequency of – and satisfaction with – social relationships emerged as the main indicator of successful aging. Finally, only three programs considered quality of life as an outcome variable.

Table 5. Outcome variables and indicators of successful aging included in the interventions.

Dimension	**Outcome**	**Frequency (out of 19 studies)**	**Indicators (program number)**
Behavioral Lifestyles	Physical activity	9	Frequency of exercise (1,7,9,12) Strength (5,6,7,11,14) Flexibility (5,6,11,14) Balance (6,12,11,14) Intensity and duration of exercise (7,12) Physical performance (7,6) Cardiovascular endurance (5) Exercise motivation (7) Disability (7) Physically active (6) Physical agility (5) Endurance, energy level, coordination (6) Systolic blood pressure (11,17) Blood glucose (11)
	Nutrition	8	Anthropometric measures: weight, waist circumference, BMI (5,6,7,11,12,14) Nutritional habits (1,9,12) Nutritional status (12,14)
	Health	8	General health status (1,6,12,18) Possibility of falls (6,14) Subjective health (1) Use of medication (7) Health responsibility (9) Quality of sleep (6,12) Healthy lifestyle promotion behaviors (9,16) Cardiovascular disease: stroke, angina (19)
Cognitive Activity and Training	Cognitive function	8	Memory (1,4,7,12,13,14) General cognitive function (6,7,10,12) Subjective memory/complaints (1,10,12) Executive functions (10,12) Processing speed (12,14) Level of mental fitness (4) Visuospatial skills (10)

	Cognitive skills	4	Use of mnemonic strategies (1) Confidence in mental abilities (4) Knowledge and interiorization (8) Frequency of intellectual activities (1)Learn new things (6) Ability to do new things (4)
Affect and Personality	Affect	11	Depression (4,7,10,11,12,13) Negative/positive emotions (1,3,6,17) Happiness/life satisfaction (1,13,17,18) Subjective well-being (3,6) Self-esteem (4) Affective balance (17) Hedonic balance (1)
	Control	9	Self-efficacy beliefs (1,3,7,14,16) Self-efficacy for exercise (7,14) Self-efficacy for nutrition (14) Self-efficacy for improving memory (14) Stress perception and management (6,7,9) Level of worry (3,17) Use of feedback (3) Realistic goal setting (3,4) Proactive orientation (3) Adjustment (12)
	Personality	5	Optimism (4,12,17) Creativity (4) Mental flexibility (4) Spiritual growth (9) Willingness to take risks (4) Morale (16)
	Awareness of aging process	2	Knowledge of aging process (1,9) Perceptions on aging (1) False beliefs on aging (9)
Social Functioning and Participation	Social participation	7	Frequency and satisfaction of social relationships (1,9,12) Volunteerism (7,12) Feel safe and supported (6,12) Intergenerational relationships (2) Leisure activities (1) Involvement in social activities (6) Loneliness/social networks (6) Pro-social behavior (7) Social support (11)
Quality of Life (QoL)	Quality of life	3	Health-related QoL (7,14,15) General (14,15) Psychological/Spiritual (14,15) Socioeconomic/Family (14) Environmental (15)

Conclusions and future perspectives

The active involvement of citizens in safeguarding their own health is of paramount importance to meeting the challenges associated with the extension of life expectancy. This is required both by growing concern for social welfare and well-being, and by the increasing cost to individuals and societies of prolonged aging. Extended aging can be better addressed by enabling people to better manage the inevitable decline associated with aging and by avoiding prejudices that may lead to addressing aging in an inappropriate manner. This requires acknowledging the assets that allow individuals to continue to function in good health and to identify the policies and interventions capable of attenuating and moderating the losses and impairments most commonly associated with old age. Above, we have given an account of research and interventions demonstrating that aging has assets that should be valued and that the negative sides of aging can be effectively mitigated.

Interventions designed to promote successful aging differ in theoretical background (conceptual and disciplinary), methods (design, goals, and targets), focus and priorities. Clarity in their terms and aims, however, are pre-conditions to bringing theories and practices to convergence and to creating the synergies among disciplines that are required to address the complexity of the phenomena under investigation. In this regard, much remains to be done.

Close examination of the methods used by the studies reviewed here revealed that more randomized controlled trials are needed to improve the confidence that observed changes are caused by the intervention program. In addition, greater follow-up is needed, as only three studies in the analysis were prospective. It was found that pre-experimental design (which was used in many interventions, specifically the pre-post one group design) has the lowest level of scientific quality and provides the least confidence that any observed changes were caused by the intervention. Because pre-experimental design does not involve a control group, this type of study provides limited evidence that the observed changes were due to the intervention and not due to other influences.

The majority of programs reviewed here were unidimensional, focusing on a single dimension of successful aging, and centered on one strategy, most commonly psychological. For instance, a given study might focus solely on cognitive training,

physical activity, life review techniques or intergenerational experiences, among others. However, some programs were more comprehensive and complex, involving multiple dimensions (e.g. physical activity, cognitive training, nutrition and social participation). Again, the results of the lack of theoretical consensus in the field are a great variety of applied strategies, all of them claiming to effectively promote successful aging. In this sense, the debate on what successful aging is, how to measure it, and how to develop interventions to promote it is still open (Pruchno, 2015).

The outcome variables adopted in order to assess successful aging were also very diverse among the studies reviewed here. Physical activity was a very common target across the programs; however, it was operationalized by 14 different indicators (frequency of exercise, flexibility, balance, disability, endurance, etc.).

Despite the wide variation of strategies used and indicators of success adopted, in an effort to find commonality among different programs, we can observe that the analyzed programs focused, in one way or another, on domains of experience commonly associated with aging well: a) health and healthy habits, b) cognitive function, c) development of affectivity and control, and d) social participation (Fernández-Ballesteros, 2002b; Fernández-Ballesteros, 2005; Fernández-Ballesteros et al., 2012).

In the first domain, most programs addressed promotion of health, physical fitness, and prevention of physical disability as key strategies, and their outcome variables were related to these. A group of programs implied actions related to improve health status, physical performance and functional status, controlling physical exercise and fitness, functional adequacy, and nutritional habits. According to the WHO (2016), the extent to which individuals and society can benefit from extra years during aging depends heavily on health. A longer life brings great opportunities, but only if strategies for enhancing health are implemented.

In the domain of cognitive function, the programs focused on cognitive optimization and compensation for the decline associated with age. Cognitive function is an essential component of health and well-being across the life span, and understanding the relationship of aging to cognitive function is an increasingly high priority for societies, not only because of the realities of population aging, but also because of the cognitive function's intrinsic relevance to the lives of older adults (Hofer &Alwin, 2008). Thus,

efforts to improve general cognitive function, memory, attention, processing speed and executive function, as well as training in the use of mnemonic strategies, are needed to improve health and successful aging.

Another common domain which programs focused on was the regulation of affect and personality. The promotion of positive emotions and the proper management of despondency feelings are crucial in order to cope with stress and avoid depression. To this end, sustaining and fostering self-efficacy beliefs across domains of functioning appears crucial to promote successful aging. Self-efficacy beliefs, in fact, influence people's thoughts, the course of action they choose to pursue, their challenges and goals, their commitment to action and the amount of effort invested. Likewise, they affect the outcomes people expect to achieve, their efforts and perseverance in the face of obstacles, their resilience in the face of adversities and setbacks, the levels of stress and depression they might experience when faced with a demanding and unhospitable environment, and, ultimately, the achievements they attain (Bandura, 1997).

The maximization of social involvement was the fourth domain in which the programs coincided; the strategies used were the improvement of social relationships with family and friends, volunteerism, and social participation in general. Social relations exist within the context of the individual, the family, and societal development and change, and have both a main and a buffering effect on well-being (Antonucci, 1991).

Despite their differences in terms, methods, and specific dimensions and outcomes, the common thread running throughout the psychosocial programs reviewed here is the recognition of the importance of effective self-management and thus the need to develop and implement strategies for enabling older adults to pursue a life worth living long. According to the WHO (2016), the implementation of these strategies should be underpinned by the following principles: human rights, equity, equality and non-discrimination (particularly on the basis of age), and intergenerational solidarity. Thus, programs devoted to promoting successful, active or healthy aging should adopt these principles.

As policies and programs to promote successful aging face numerous challenges, political and public organizations should eliminate potential barriers and enhance community resources to strengthen health education programs that promote active aging.

Scientists and practitioners should have the resources they need to investigate and design suitable projects to promote successful aging across contexts and times. Elderly individuals themselves, besides being the direct beneficiaries of these types of programs, should be made aware and take responsibility for their successful implementation by participating actively in their design and promotion. Combining all these human resources, a society that is increasingly aging would have multiple opportunities and resources at its disposal to ensure its inhabitants live as healthily and successfully as possible.

References

Ahn, O., Gyeong, H., Chang, S.J., Cho, H., & Kim, H.S. (2014).Effect of an integrated health management program based on successful aging in Korean women.*Public Health Nursing*, 32 (4), 307-315. doi: 10.1111/phn.12177.

Antonucci, T.C. (1991). Social relationships and aging well.*Journal of the American Society on Aging,* 15(1), 39 – 44.

Aldwin, C.M., Spiro, A., & Park, C.L. (2006). Health, Behavior, and Optimal Aging: A Life Span Developmental Perspective. In J.E. Birren& K.W. Schaie (Eds.), *Handbook of The Psychology of Aging* 6ª Ed (pp.85-104). Burlington, USA: Elsevier Academic Press.

Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P.B. Baltes& M.M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1–34). New York, USA: Cambridge University Press.

Atchley, R.C. (1989). A continuity theory of normal aging.*The Gerontologist, 29 (2),* 183-190. doi: https://doi.org/10.1093/geront/29.2.183.

Baltes, P. B., Freund, A. M., & Li, S. C. (2005). The Psychological science of human aging.In M. L. Johnson, V. L. Bengston, P.G. Coleman, & R. B. L. Kirkwood Eds.), *The CambridgeHandbook of Age and Ageing.* Cambridge, UK: University Press.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review,* 84 (2), 191-215.

Bode, C., De Ridder, D. T., Kuijer, R. G., &Bensing, J. M. (2007). Effects of an intervention promoting proactive coping competencies in middle and late adulthood.*The Gerontologist,* 47(1), 42 – 51. doi: https://doi.org/10.1093/geront/47.1.42.

Boyes, M. (2013). Outdoor adventure and successful aging. *Aging and Society*, 33(4), 644-665. doi: https://doi.org/10.1017/S0144686X12000165.

Bowling, A. &Iliffe, S. (2006). Which model of successful ageing should be used? Baseline findings from a British longitudinal survey of ageing.*Age and Ageing*, 35 (6), 607–614. doi: https://doi.org/10.1093/ageing/afl100.

Calero, M.D. (2003). La utilidad de los programas de intervención cognitiva en personas mayores. *Revista Española de Geriatría y Gerontología.* 38 (3), 305 – 307. doi: 10.1016/S0211-139X(03)74905-1.

Canseco, M. (2015). Programa de intervención para envejecer con éxito dirigido a personas mayores de la ciudad de México (Doctoral Thesis). Universidad de Santiago de Compostela, España.

Campbell, D.T. & Stanley, J.C. (1995). *Diseños experimentales y cuasiexperimentales en la investigación social.*Argentina: Amorrortu Editores.

Caprara, G. V., Caprara, M. &Steca, P. (2003).Personality's correlates of adult development and aging.*European Psychologist*, 8 (3), 131–147. doi: http://dx.doi.org/10.1027//1016- 9040.8.3.131.

Caprara, M.G., Fernández-Ballesteros, R. & Alessandri, G. (2015). Promoting aging well: evaluation of Vital-Aging-Multimedia Program in Madrid, Spain. *Health Promotion International,* 31 (3), 515 - 522. doi: https://doi.org/10.1093/heapro/dav014.

Caprara, M.G., Molina, M.A., Schettini, R., Santacreu, M., Orosa, T., Mendoza-Núñez, V., Rojas, M., Fernández-Ballesteros, R. (2013). Active Aging Promotion: Results from the Vital Aging Program. *Current Gerontology and Geriatrics Research*, 2013,1-14. doi: http://dx.doi.org/10.1155/2013/817813.

Chi, I. &Lubben, J. (1994). The California preventive health care for the aging program: differences between the younger old and the oldest old. *Health Promotion International,* 9 (3), 169 –176.doi: https://doi.org/10.1093/heapro/9.3.169.

Correa-Bautista, J.E., Sandoval-Cuellar, C., Alfonso Mara, M.L. & Rodríguez-Daza, K.D. (2012). Cambios en la aptitud física en un grupo de mujeres adultas mayores bajo el modelo de envejecimiento activo. *Revista de la Facultad de Medicina*, 60(1), 21-30.

Cusack, S.A. (2003). Mental fitness for life: Assessing the impact of an 8-week mental fitness program on healthy aging. *Educational Gerontology*, 29(5), 393-403.

Diener, E., & Chan, M.Y. (2011). Happy People Live Longer: Subjective Well-Being Contributes to Health and Longevity. *Applied Psychology Health and Well-Being, 3*(1), 1– 43.doi: 10.1111/j.1758-0854.2010.01045.x

Estebsari, F., Hossein, M., Foroushani, A.R., Ardebili, H.E. &Shojaeizadeh, V. (2014). An educational program based on the successful aging approach on health-promoting behaviours in the elderly: a clinical trial study. *Iranian Red Crescent Medical Journal*, 16 (4), e16314.

Fernández-Ballesteros, R. (2002a). Envejecimientosatisfactorio. In J. M. MartínezLage, (Ed*.), Corazón y cerebro, ecuación crucial de envejecimiento*. Madrid, España: Pfeizer.

Fernández-Ballesteros, R. (2002b). *Vivir con vitalidad*. Madrid, Spain: Pirámide.

Fernández-Ballesteros, R. (2005). Evaluation of "Vital Aging-M": a psychological program for promoting optimal aging. *European Psychologist,* 10 (2), 146 – 156.

Fernández-Ballesteros, R. (2008). *Active Ageing.The Contribution of Psychology*.Göttingen, Germany: Hogrefe& Huber Publishers.

Fernández-Ballesteros, R., Botella, J., Zamarrón, M. D., Molina, M. A., Cabras, E., Schettini, R., &Tárraga, L. (2012a).Cognitive plasticity in normal and pathological aging.*Clinical Interventions in Aging*, 7, 15 – 25.doi: http://dx.doi.org/10.2147/CIA.S27008

Fernández-Ballesteros, R., Caprara, M.G. & García, L.F. (2004). "Vivir con Vitalidad-M: un programa europeo multimedia. *PsychosocialIntervention,* 13 (1), 63-84.

Fernández-Ballesteros, R., Caprara, M.G., Iñiguez, J. & García, L.F. (2005a). Vital Aging-M: anEuropean multimedia programme. *Psychology in Spain,* 9 (1), 1 - 12.

Fernández-Ballesteros, R., Caprara, M.G., Iñiguez, J., García, L.F. (2005b). Promocion del envejecimiento activo: Efectos del programa Vivir con Vitalidad. *Revista Española de Geriatría y Gerontología.* 40 (2), 92 – 102.

Fernández-Ballesteros., R., Molina, M.A., Schettini, R. &Santacreu, M. (2013).The Semantic Network of Aging Well.*Annual Review of Gerontology and Geriatrics*, 33 (1), 79-107. doi: https://doi.org/10.1891/0198-8794.33.79.

Fernández-Ballesteros, R., Schettini, R., Molina, M. A. &Santacreu, M. (2012).*Testing a Four Domain Model of Aging Well*, Autonomous University of Madrid, Report. Madrid, Spain.

Fernández-Ballesteros, R., Zamarrón, M.D., Calero, M.D, & Tárraga, L. (2007). Cognitive Plasticity and cognitive impairment. In R. Fernández-Ballesteros (Ed.), *Geropsychology: European perspectives for an aging world* (pp.145-164). Göttingen, Germany: Hogrefe& Huber Publishers.

Foy, C. G., Vitolins, M. Z., Case, L. D., Harris, S. J., Massa-Fanale, C., Hopley, R. J.,…Gaspari, J. (2013). Incorporating prosocial behavior to promote physical activity in older adults: Rationale and design of the Program for Active Aging and Community Engagement (PACE).*Contemporary clinical trials, 36 (1),* 284 - 297.doi: 10.1016/j.cct.2013.07.004.

Frederickson, B. L. &Losada, M. F. (2005).Positive affect and the complex dynamics of human flourishing.*American Psychologist*, 60 (7), 678–686. doi: 10.1037/0003-066X.60.7.678

Fries, J. F. (2002).Reducing disability in older age.*Journal of the American Medical Association*, 288 (24), 3164–3166. doi: doi:10.1001/jama.288.24.3164

Fries, J. F. & Crapo, L. M. (1981).*Vitality and Aging*. New York, USA: Freeman.

González-Pardo, H. & Pérez-Álvarez, M. (2013).Epigenetics and its implications for psychology.*Psicothema,* 25 (1), 3–12.

Hank, K. (2011). How successful in aging do older Europeans age? Finding from SHARE.*Journal of Gerontology. Series B, Psychological Sciences and Social Sciences*, 66 (2), 230–236. doi: 10.1093/geronb/gbq089.

Hartman-Stein, P. &Potkanowicz, E. S. (2003). Behavioral Determinants of Healthy Aging: Good News for the Baby Boomer Generation. *Online Journal of Issues in Nursing, 8.*Retrieved from http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume82003/No2May2003/BehaviorandHealthyAging.aspx (last accessed 01/25/2017).

Havighurst, R. J. (1961). Successful aging.*The Gerontologist,* 1 (1), 8−13.doi: https://doi.org/10.1093/geront/1.1.8.

Havighurst, R. (1963). Successful aging.In R.H. Williams, C. Tibbitts& W. Donahue (Eds.), *Processes of aging*.Vol. 1, (pp. 299–320). New York, USA: Atherton.

Hertzog, C., Kramer, A. F., Wilson, R.S. &Lindenberger, U. (2009). Enrichment effects on adult cognitive development. *Psychological Science in the Public Interest*, 9 (1), 1–65. doi: 10.1111/j.1539-6053.2009.01034.x.

Hoffer, S.M.&Alwin, D.F. (2008). *Handbook of cognitive aging.Interdisciplinary perspectives.* Thousand Oaks, USA: Sage Publications Inc.

Jiménez, M.G., Izal, M. &Montorio, I. (2016). Programa para la mejora del bienestar de las personas mayores. Estudio piloto basado en la psicología positiva. *Suma Psicológica,* 23(1), 51-59.

Keyes, C.L. (2007). PsychologicalWell-Being. In J.E. Birren (Ed.), *Encyclopedia of Gerontology* 2ª Ed. Elsevier Academic Press.

Kirkwood T. B. L. (2005). The Biological Science of Human Aging.In M.L. Johnson (Ed.), *Age and Ageing* (pp.72-84). Cambridge, UK: Cambridge University Press.

Kliegl, R., Smith, J. &Baltes P. B. (1989). Testing-the limits and the study of adult age differences in cognitive plasticity of a mnemonic skill. *Developmental Psychology*, 25 (2), 247–256.

Latorre, J.M., Serrano, J.P., Ricarte, J., Bonete, B., Ros, L. & Sitges, E. (2015). Life review based on remembering specific positive events in active aging. *Journal of Aging and Health*, 27 (1), 140-157. doi: 10.1177/0898264314541699.

Lojo-Seoane, C., Facal, D., & Juncos-Rabadán, O. (2012).¿Previene la actividadintelectual el deteriorocognitivo?Relaciones entre reservacognitiva y deteriorocognitivoligero.*Revista Española de Geriatría y Gerontología*, 47 (6), 270-278.doi: 10.1016/j.regg.2012.02.006.

Lorenzo, T., Millan-Calenti, J.C., Lorenzo López, L. &Maseda, A. (2013).Efectos del programa educativo Gero- Health sobre el nivel de interiorización de conocimientos de prevención y promoción de la salud en personas mayores. *Revista de Investigación Educativa*, 31(2), 502-515. doi: http://dx.doi.org/10.6018/rie.31.2.163391

Lyubomirsky, S., King, L. A. &Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131 (6), 803–855. doi: 10.1037/0033-2909.131.6.803.

Mastropietro, E. (2016). Clubes de memoria. Programas de Intervención Comunitaria en Salud para Adultos Mayores. *Revista Psicología*, 33(1), 15-32.

Mendes de Leon, C.F., Glass, T.A. & Berkman, L.F. (2003). Social engagement and disability in a community population of older adults: the New Haven EPESE. *American Journal of Epidemiology*, 157 (7), 633–642.

Mendoza Ruvalcaba, N.M. & Arias Merino, E.D. (2015). "I am active": effects of a program to promote active aging. *Clinical Interventions in Aging*, 2015(10), 829-837. doi: 10.2147/CIA.S79511.

Mendoza Ruvalcaba, N.M &Fernández Ballesteros, R. (2016).Effectiveness of the Vital Aging program to promote active aging in Mexican older adults.*ClinicalInterventions in Aging,* 11, 1631-1644. doi: 10.2147/CIA.S102930.

MidlarskyE,&Kahana E. (2007). Altruism, well-being, and mental health in late life. In: Post SG, editor. Altruism and health: Perspectives from empirical research (pp. 56–69). New York, USA: Oxford University Press.

Mnich, E., Hofreuter-Gätgens, K., Salomon, T., Swart, E. &Knesebeck, O. (2013).Outcome evaluation of a health promotion among the elderly.*Gesundheitswesen*, 75(2), 5–10. doi: 10.1055/s-0032-1311617.

Moeini, M., Sharifi, S. &Zandiyeh, Z. (2016). Does Islamic spiritual program lead to successful aging? A randomized clinical trial.*Journal of Education and Health Promotion,* 5 (2), 1 – 7. doi: 10.4103/2277-9531.184561.

Newman, A.B., Dodson, J.A., Church, T.S., Buford, T.W., Fielding, R.A., Kritchevsky, S.LIFE study group. (2016). Cardiovascular events in a physical activity intervention compared with a successful aging intervention. The LIFE study randomized trial. *Journal of the American Medical Association Cardiology*, 1(5), 568 – 574. doi: 10.1001/jamacardio.2016.1324.

Park, D. C., Gutchess, A. H. Meade, M. L. & Stine-Morrow, E. A. (2007). Improving cognitive function in older adults: nontraditional approaches.*The Journals of Gerontology B Psychological Sciences Social Sciences*, 62 (s1), 45–52.

Pruchno, R. (2015). Successful aging: contentious past, productive future. *The Gerontologist.*55(1), 1-4. doi: https://doi.org/10.1093/geront/gnv002.

Rowe, J. W., & Kahn, R. L. (1997).Successful aging.*The Gerontologist,* 37 (4), 433–440. doi: https://doi.org/10.1093/geront/37.4.433.

Rowe, J. W., & Kahn, R. L. (1998).*Successful aging*.New York, USA: Pantheon.

Ryff, C.D. (1982). Successful Aging: A Developmental Approach. *TheGerontologist,*22 (2), 209 – 214. doi:https://doi.org/10.1093/geront/22.2.209.

Ryff, C. D. (1989). Beyond Ponce de Leon and lifesatisfaction: New directions in questofsuccessfulaging. *International Journal of BehavioralDevelopment*, 12 (1), 35–55.

Santos, L.C., Oliveira, L.M.A., Alves Barbosa, M., Pires Nunes, D. &Visconde Brasil, V. (2015). Calidad de vida de los mayores que participan en el grupo de promoción de la salud. *Enfermería Global,* 14 (4), 1-11.

Scult, M., Haime, V., Jacquart, J., Takahashi, J., Moscowitz, B., Webster, A.& Mehta, D. (2015). A healthy aging program for older adults: effects on self-efficacy and morale. *Advances in Mind Body Medicine*, 29 (1), 26-33.

Schaie K. W. (2005). *Developmental Influences on Adult Intelligence: The Seattle Longitudinal Study.* New York, USA: Oxford University Press.

Sikora, S. (2008).The University of Arizona College of Medicine Optimal Aging Program.*Gerontology& Geriatrics Education*, 27(2), 59–67. doi: http://dx.doi.org/10.1300/J021v27n02_07.

Staehelin, H. R. (2005). Promoting health and well-being in later life.In M.L. Johnson (Ed.), *Age and Ageing* (pp.165–177). Cambridge, UK: Cambridge University Press.

Tang, K. C., Nutbeam, D., Aldinger, C., St Leger, L., Bundy, D., Hoffmann, A. M....Heckert, K. (2009). Schools for health, education and development: a call for action. *Health Promotion International,* 24 (1), 68–77. doi: https://doi.org/10.1093/heapro/dan037.

Warner, L. M., Schwarzer, R., Schüz, B., Wurm, S., &Tesch-Römer, C. (2012). Health-specific optimism mediates between objective and perceived physical functioning in older adults. *Journal of Behavioral Medicine, 35*(4), 400–406. doi:10.1007/s10865-011-9368-y.

World Health Organization WHO.(2002). *Active Aging.A Policy Framework*. Geneva, Switzerland: World Health Organization.

World Health Organization WHO.(2016). *Global strategy and action plan on aging and health (2016-2010).* Geneva, Switzerland: World Health Organization.

Zunzunegui, M.V., Rodriguez-Laso, A., Otero,A., Plujim, S.M.F., Nikula, S., Blumstein, T.&Deeg, D.J.H. (2005). Disability and social ties: comparative findings of the CLESA study. *European Journal of Ageing*, 2 (1), 40-47. doi: 10.1007/s10433-005-0021-x

4.2 ARTÍCULO ORIGINAL:

"I am Active": Effects of a program to promote active aging

Referencia:
Mendoza Ruvalcaba, N.M., Arias Merino, E.D. (2015). "I am Active": Effects of a program to promote active aging. *Clinical Interventions in Aging.* 10, 829 – 837.

"SOY ACTIVO" es un programa diseñado para promover el envejecimiento exitoso en personas de 60 años y más, a través de la mejora en la actividad física, hábitos nutricionales saludables y funcionamiento cognitivo, que promueve mejor calidad de vida.

El programa dura en total 32 horas, en 16 sesiones impartidas a lo largo 2 meses, a razón de 2 sesiones por semana, con una duración de 2 horas cada una. Es de modalidad presencial, grupal. Incluye tareas para casa. A cada participante se le entrega el "Manual del Usuario", que es un texto diseñado especialmente para este curso y que contiene información y materiales de cada una de las sesiones a revisar durante el taller.

El objetivo de este estudio es determinar la eficacia de este programa.

En este estudio de diseño longitudinal, participaron n=64 adultos mayores saludables que asistían a centro grupos comunitarios. Se dividieron en dos grupos (experimental n=31, control n=33), el primero formó parte del programa "Soy Activo" mientras que el segundo permaneció en lista de espera. El programa consistió en sesiones teórico-prácticas de ejercicio físico, hábitos de nutrición y entrenamiento cognitivo. Se aplicó una batería para la pre-prueba, post-prueba y un seguimiento a 6 meses, que incluía la escala Tinetti, dinamómetro manual, goniómetro, *Mini Nutritional Assessment*, medidas anropométricas, símbolos de

dígitos y dígitos al inverso (de WAIS-III), escalas de auto-eficacia y el Indice de Calidad de Vida. Se calcularon diferencias de medias (prueba t y anova de medidas repetidas) y tamaño del efecto d-Cohen..

Se encontró que los grupos fueron similares en la línea base. Después del programa el grupo experimental mejoró de manera significativa en los diferentes ámbitos de envejecimiento activo, comparado con el grupo control:

Actividad física: riesgo de caídas ($p<.05$, d-Cohen=.34), equilibrio ($p<.05$, d-Cohen=.40), arco de movilidad ($p<.05$, d-Cohen=.65), autoeficacia para la actividad física ($p<.001$, d-Cohen=.76).

Nutrición: autoeficacia para la nutrición ($p<.01$, d-Cohen=.61), estado nutricio ($p<.05$), consumo de agua ($p<.05$).

Funcionamiento cognitivo: velocidad de procesamiento ($p<.001$, d-Cohen=.50), memoria operativa ($p<.05$), autoeficacia para mejorar la memoria ($p<.001$, d-Cohen=.89).

Calidad de vida: general ($p<.01$, d-Cohen=.63), salud-funcionalidad ($p<.01$, d-Cohen=.54), psicológico-espiritual ($p<.05$, d-Cohen=44) y familia ($p<.05$, d-Cohen=36).

En el seguimiento se mantuvieron las mejoras en riesgo de caídas, autoeficacia para la actividad física, autoeficacia para la nutrición, velocidad de procesamiento, calidad de vida en general y su componente psicológico espiritual.

Los hallazgos muestran que el programa promueve el cambio conductual para la mejora en los dominios del envejecimiento activo (actividad física, nutrición y funcionamiento cognitivo), así como en la calidad de vida, en adultos mayores saludables.

Clinical Interventions in Aging

Dovepress

open access to scientific and medical research

Open Access Full Text Article

ORIGINAL RESEARCH

"I am active": effects of a program to promote active aging

Neyda Ma Mendoza-Ruvalcaba[1]
Elva Dolores Arias-Merino[2]

[1]Health Sciences Department, University of Guadalajara, University Center of Tonala Guadalajara, Jalisco, Mexico; [2]Public Health Department, University of Guadalajara, University Center of Health Sciences, Guadalajara, Jalisco, Mexico

Background: Active aging involves a general lifestyle strategy that allows preservation of both physical and mental health during the aging process. "I am Active" is a program designed to promote active aging by increased physical activity, healthy nutritional habits, and cognitive functioning. The purpose of this study was to assess the effectiveness of this program.

Methods: Sixty-four healthy adults aged 60 years or older were recruited from senior centers and randomly allocated to an experimental group (n=31) or a control group (n=33). Baseline, post-test, and 6-month follow-up assessments were performed after the theoretical–practical intervention. Effect sizes were calculated.

Results: At the conclusion of the program, the experimental group showed significant improvement compared with the control group in the following domains: physical activity (falls risk, balance, flexibility, self-efficacy), nutrition (self-efficacy and nutritional status), cognitive performance (processing speed and self-efficacy), and quality of life (general, health and functionality, social and economic status). Although some declines were reported, improvements at follow-up remained in self-efficacy for physical activity, self-efficacy for nutrition, and processing speed, and participants had better nutritional status and quality of life overall.

Conclusion: Our findings show that this program promotes improvements in domains of active aging, mainly in self-efficacy beliefs as well as in quality of life in healthy elders.

Keywords: active aging, successful aging, intervention program, randomized controlled trial

Introduction

Population aging is taking place worldwide, and has major social, economic, and health consequences. While people are living longer lives almost everywhere, the prevalence of non-communicable diseases and disability is increasing as populations experience aging.[1]

The World Health Organization (WHO)[2] considers that "active aging" is a key concept allowing people to realize their own potential, living their own aging as a positive experience free of disability, with continuing opportunities for health, participation, and security, especially in aging societies like ours. The theoretical WHO model of active aging involves several determinants related to health and social services, economics, and the social and physical environment, as well as personal and behavioral factors embedded in cultural and sex contexts.

The concept of active aging has been developed both at the political and the individual level. Politically speaking, it has been proposed as a strategy that connects key policy issues (employment, retirement, health, and citizenship) with health, and suggests that active aging involves a general lifestyle strategy to preserve both physical and mental health during the aging process.[3] As a political strategy, there are population-based initiatives focused on promotion of active aging. Outstanding examples are "Active Ageing Australia",[4] "Active for Life",[5] the "Building Healthy Communities

Correspondence: Neyda Ma Mendoza-Ruvalcaba
Centro Universitario de Tonala, Av Nuevo Periférico No 555, Ejido San José Tatepozco, CP 48525, Tonalá, Jalisco, México
Tel +52 33 1657 1227 Ext 64052
Email nmendoza_ruvalcaba@yahoo.com.mx

for Active Aging National Recognition Program",[6,7] and the "International Council on Active Aging";[8] in the European Union, 2012 was named as the "European Year for Active Ageing and Solidarity between Generations".[9]

However, aging is not only a population phenomenon, but an experience and an individual reality,[10] and even though active aging is well considered as a political strategy, at the individual level there is a lack of agreement in academic spheres regarding its concept and definition.[11,12] Currently, the most widely used terms are: "successful aging" based on Rowe and Kahn's model,[13,14] defined as free of disease and disability, high cognitive and physical functioning, and social engagement, and "healthy" or "optimal" aging. This conceptual disagreement becomes important when analyzing practical interventions.

Moreover, there are a number of intervention programs designed as strategies to promote active aging which are implemented in groups of individuals. These programs address different dimensions and strategies to promote active aging.

For example, "vital aging" is an individual active aging promotion program developed on the basis of four domains as determinant factors of active aging, ie, health, cognitive and physical functioning, affect and control, and social participation. It is implemented through three different modalities, ie, life, multimedia, and e-learning, and has been implemented in several editions, particularly in Spain. In general, the results show improving physical exercise, diet, improved memory, improved emotional balance, and better social relationships, and participants enjoyed more cultural, intellectual, affective, and social activities than before. It should be said that this program had different results among program versions.[15] Other interventions, also based on the WHO model, focused on health-promoting behaviors in the elderly, such as physical activity, nutrition, stress management, spiritual growth, interpersonal relationships, and health, dimensions considered to implement an educational program based on a successful aging approach. After 12 months, results for 464 elderly people showed that participants in the experimental group improved their awareness of facts about aging and better health behaviors.[16]

Other studies have implemented intervention programs at the individual level as strategies to promote "active", "successful", or "optimal" aging based on only one dimension, such as physical activity, emotional well-being, intergenerational relationships, or promotion of leisure activities. "The California Active Aging Community Grant Program" is a choice-based, telephone-assisted intervention model in different community settings designed to promote active aging through a training intervention to increase physical activity in older people. Data from 447 participants revealed favorable levels of program satisfaction and significant increases in physical activity.[17] Similarly, the "Program for Active Aging and Community Engagement" is also focused on promoting physical activity among the elderly. Two interventions, based on educational sessions or a prosocial behavior physical activity, demonstrated not only increased physical activity but also improvements in physical function and health-related quality of life after 12 months.[18]

On the other hand, some active aging programs have been designed based specifically on enhancing emotional well-being. Training strategies were based on life review techniques of specific positive events in non-depressed elderly. Results show that the experimental group had decreased depressive symptomatology, improved life satisfaction, and increased autobiographical memory.[19] According to other authors, successful aging strategies are reflected in interest in outdoor adventure activities (such as mountain biking and backpacking). These kinds of activities are considered as positive leisure experiences that include challenging physical activity, social engagement, and the natural environment. This community-based program was assessed using qualitative and quantitative data, and outcomes showed psychological and physical benefits through improvements in health and well-being.[20] Meanwhile "The Optimal Aging Program" emphasizes the importance of intergenerational relationships to promote active aging. This is a longitudinal mentoring program that pairs college students with older adults who are considered to be aging successfully. Its main goals are to provide students with an opportunity to develop a relationship with an older adult who continues to be active in her/his community and expand their concept of aging to include the reality of healthy, active older adulthood.[21]

The intervention program "I am Active" was designed in this study. It takes into account the theoretical model of the WHO, considering active aging as an outcome of different determinant factors that place people in profiles, that are more at risk or, on the other hand, are more favorable to age actively.[22] This program was an intervention on behavioral and personal dimensions of active aging. The strategies used were focused on promoting physical activity, better nutrition, and better cognitive function. "I am Active" considers that one of the main risks for aging is disability, which can be preventable by adequate intervention strategies[23] and healthy nutrition.[24] It also includes cognitive function,

based on the evidence that learning ability remains across old age,[25] improved cognitive function prevents cognitive impairment[26] and its evident progression to dementia,[27,28] considered to be one of the most disabling and expensive diseases of old age.[29]

The purpose of this research was to determine the impact on active aging of the intervention program "I am Active", which promotes physical activity, improved nutrition and cognitive function, as well as quality of life in people aged 60 years and older.

Materials and methods

Participants

Sixty-four older persons participated in this randomized controlled trial, which included baseline, post-test, and 6-month follow-up assessments. Participants were recruited from senior centers based on the following inclusion criteria: age 60 years or older, availability to attend sessions at least twice a week, willingness to participate in the program, and being literate. Exclusion criteria were: depressive symptomatology measured by the Spanish version of the Geriatric Depression Scale[30] and cognitive impairment determined by the Mini-Mental State Examination,[31] translated and validated in Mexico by age, sex, and education.[32]

The experimental group included 31 participants (attrition 13.9%) and 33 control participants (attrition 9.1%). The exclusion of both the study and analysis of those who did not complete the study did not alter the similarity between groups.

The intervention

"I am Active" is a program designed to promote active aging in persons aged 60 years and older by stimulating and improving physical activity, nutrition, and cognitive functioning, and seeks to promote better quality of life. Its specific objectives are to stimulate and improve physical activity, encourage and promote healthy eating behaviors, and improve working memory and processing speed.

The participants in the intervention group received a "user manual" specifically designed for this purpose. The program lasted 2 months, and consisted of 2-hour group sessions, held twice a week (ie, 16 sessions in total). The participants in the control group remained on a wait list and participated in the program once the study was completed, participating in the meantime in weekly social activities organized by the senior center.

All sessions were both theoretical and practical and had similarities in their structure. Eight lessons were focused on nutritional topics and eight sessions on cognitive functioning and were presented alternately (Table 1).

Each session started with reality orientation techniques, where participants were asked about orientating information, such as time (date, day of the week, time, season, current events), place (address, streets around the site, city, state, cardinal points), and person (name, age, who in the group were absent or present). This initial activity was called " daily news". The next 30 minutes of each session were focused on physical activity, where physical exercises were performed to work on muscular strength, balance, and mobility, and included a discussion of basic concepts concerning fact and fiction related to physical exercise, and benefits, types, and levels of intensity during exercises, preventive measures, and self-monitoring.

After the physical activity was finished, the trainer gave a general presentation of the session's content, presenting supporting evidence on each issue. In sessions related to nutrition, general concepts were reviewed, along with truth and fiction about nutritional facts, healthy proportions of each of the principle food groups and types of nutrients, and good eating behaviors. Later, practical exercises were undertaken, including how to plan healthier dishes on a budget, both on a daily basis and when choosing from a restaurant menu. In the sessions related to cognitive function, the trainer explained the theory of the changes that occur in cognitive aging, and memory and practical activities were developed based on information organization, visualization, or association

Table 1 Contents of the "I am Active" program

Session	Cognitive functioning	Session	Nutrition
1	I am Active introduction	2	About nutrition
3	Memory	4	Eating well
5	Changes in memory	6	Fruits and vegetables
7	Truth or fiction about my memory	8	Meat, fish and seafood
9	Exercises to improve my mind	10	Grains, breads and cereals
11	Types of memory	12	Milk, fats, oils and sweets
13	What is normal and what is not about my memory?	14	My own nutritional plan
15	My own plan to improve my memory	16	Compromise with my health

strategies to improve or activate both memory and attention as well as speed processing tasks like pairing images in the least possible time.

Both topics and practical exercises were included based on literature reviews, and chosen according to their effectiveness. At the end of each session, the trainer made some concluding remarks and homework was explained. As reinforcement, at the end of the intervention, each participant designed his or her own plan and set personal goals. Follow-up group sessions were held monthly during the next 6 months to enhance adherence efficacy.

Outcome measures of active aging

The experimental group and the control group were evaluated at baseline, post-test, and after 6 months of follow-up. Participants were assessed at home by a previously trained team comprising a psychologist and a dietitian. The following outcomes were assessed for all participants.

Physical activity

Balance, gait, and risk of falling were assessed using the Tinetti scale. A goniometer was used to measure the range of motion (in degrees) of the arms when moving sideways and forward, which is regarded as a measure of flexibility. Maximal grip strength (in kg) was measured in both hands using a hand-held dynamometer. Self-efficacy for physical activity was measured by estimating the strength of one's belief in the ability to perform regular physical activity on a scale from 0 ("I cannot do it") to 6 ("sure, I can do it"). [33]

Nutrition

Nutritional status was measured using the Mini-Nutritional Assessment.[34] Body mass index was calculated based on WHO parameters[35] using a digital bioimpedance scale (Tanita Inner Scan BC-558) for body composition. Height was measured using an anthropometric tape. Self-efficacy for improving nutrition was measured by estimating the strength of beliefs in the ability to do so, using a scale designed according to Bandura parameters.[33]

Cognitive function

Working memory was assessed by the Digit Span Backward Subtest[36] and processing speed by the Digit Symbol Subtest.[36] Self-efficacy to improve memory was determined using a scale designed especially for this purpose, according to Bandura parameters.[33]

Quality of life

A Spanish version of the Quality of Life Index[37] was used to assess general quality of life as well as its specific dimensions, ie, health and functioning, psychological/spiritual, socioeconomic, and family.

Statistical analysis

The data were analyzed using Statistical Package for the Social Sciences version 18 software (Chicago, IL, USA). The data were processed to obtain proportions, means, and their standard deviations. Changes in active aging domains and quality of life in the experimental and control groups were compared to evaluate the effectiveness of the "I am Active" program. Comparisons were performed by chi-squared test, the Student's *t*-test, and repeated measures analysis of variance. Accordingly, when reporting and interpreting intervention studies, a *P*-value can inform whether an effect exists but not reveal the size of it. The magnitude of the difference between groups, or effect size, was calculated as a main finding of the quantitative study, thus both the substantive significance (effect size) and statistical significance (*P*-value) are considered essential results to be reported.[38] In this study, Cohen's *d* was used to determine the effect size, which could be classified as small (d=0.2), medium (d=0.5), or large ($d \geq 0.8$).[39]

Results

The sociodemographic characteristics of participants in the experimental and control groups are shown in Table 2. The groups were comparable for age, sex, marital status, and

Table 2 Sociodemographic characteristics of the participants

Variable	Group		*P*-value
	Experimental n=31 (%)	Control n=33 (%)	
Age (years), mean ± SD	70.45±6.37	70.82±7.20	0.830[a]
Sex, n (%)			
Women	29 (93.5)	28 (84.8)	0.428[b]
Men	2 (6.5)	5 (15.2)	
Marital status, n (%)			
Married	12 (38.7)	11 (33.3)	0.654[c]
Not married	19 (61.3)	22 (66.7)	
Education (years), mean ± SD	5.55±3.12	3.97±3.28	0.054[a]
Diseases, n (%)			
Diabetes	7 (22.6)	9 (27.3)	0.665[c]
Hypertension	18 (58.1)	22 (66.7)	0.477[c]
Heart disease	6 (19.4)	4 (12.1)	0.504[b]

Notes: [a]Student's *t*-test; [b]Fisher's Exact test; [c]Pearson's chi-squared test.
Abbreviation: SD, standard deviation.

disease status. There was a trend of higher schooling in the experimental (5.55 years) group when compared with control group (3.97 years). The results of the intervention on the dimensions of active aging, ie, physical activity, cognitive functioning, and nutrition, are shown in Table 3.

The groups were similar for physical activity dimensions at baseline (all $P<0.05$), but by the end of the study, the intervention group had a lower risk of falls than the control group ($P<0.05$, $d=0.34$, indicating a small to medium effect size. However, at follow-up, a decline was observed and performance returned almost to their initial values.

The same pattern was seen in measures of balance, with participants in the intervention group improving in the post-test ($P<0.05$) compared with the control group (effect size $d=0.41$ considered as medium) but decreasing at follow-up to the baseline value. Similarly, the intervention group showed improved arm flexibility at post-test ($P<0.05$; effect size $d=0.65$, considered as medium to large); however, decreased performance was noted at follow-up. No change in risk of falls, balance, or flexibility was found in the control group. No effects of the program were seen in measures of gait and grip strength in either group.

Regarding self-efficacy for physical activity, the experimental group improved in the post-test ($P<0.01$) with a large effect size ($d=0.77$), and this improvement was maintained at follow-up, when the effect size was increased ($d=0.86$) compared with baseline. The control group showed a significant change in a negative direction at the post-test.

Regarding the cognitive functioning dimension, the experimental group showed significantly better performance on processing speed at the post-test ($P<0.001$), with a medium effect size ($d=0.50$), and this improvement was maintained at follow-up ($P<0.001$), with an effect size of $d=0.44$. The control group showed no significant changes. No significant changes in working memory performance were found in either group. Self-efficacy for improving memory showed a significant improvement in the pre-test/post-test comparison ($P<0.001$) in the experimental group, with a large effect size of $d=0.89$, but declined during follow-up. The control group showed no significant changes.

Improvements were observed for the nutritional dimension of active aging in the experimental group, where participants showed greater self-efficacy for nutrition after intervention ($P<0.01$), with a medium to large effect size ($d=0.62$), and although there was a small decline at follow-up, the improvement was maintained ($P>0.05$), with an effect size of $d=0.33$. No significant changes were noted in the control group.

Table 3 Outcome measures of active aging dimensions, ie, physical activity, cognitive functioning, and nutrition (experimental n=31, control n=33)

Variable	Group	Baseline	Post-test	*d*	Follow-up	*d*
Risk of falls	Experimental	26.29 (5.04)	28.06 (5.31)*	0.34	27.46 (4.55)	0.24
	Control	26.77 (5.63)	26.87 (5.87)	0.02	27.83 (4.33)	0.21
Balance	Experimental	20.42 (3.32)	21.84 (3.68)*	0.41	20.39 (3.24)	0.01
	Control	20.30 (3.32)	20.33 (2.63)	0.01	20.67 (2.70)	0.12
Gait	Experimental	5.87 (2.30)	6.23 (2.14)	0.16	6.90 (1.95)	0.48
	Control	6.47 (2.82)	7.23 (1.83)	0.33	7.17 (2.05)	0.29
Flexibility	Experimental	146.26 (22.69)	158.03 (13.49)*	0.65	147.71 (21.57)	0.07
	Control	141.83 (23.97)	141.67 (20.73)	0.01	134.83 (38.6)	0.22
Grip strength (right)	Experimental	21.16 (5.27)	20.76 (4.99)	0.08	20.12 (5.16)	0.20
	Control	20.66 (7.44)	20.46 (6.96)	0.03	20.03 (5.79)	0.10
Grip strength (left)	Experimental	18.75 (4.87)	19.38 (4.21)	0.14	18.77 (4.75)	0.00
	Control	19.26 (7.17)	18.96 (6.72)	0.04	19.50 (6.74)	0.03
Self-efficacy for physical activity	Experimental	4.48 (1.61)	5.58 (1.23)***	0.77	5.53 (0.84)***	0.86
	Control	5.50 (0.90)	4.90 (1.32)*	0.54	5.30 (1.68)	0.16
Working memory	Experimental	1.90 (0.74)	2.13 (0.99)	0.27	2.06 (0.77)	0.21
	Control	1.83 (0.79)	1.60 (0.77)	0.29	1.70 (0.75)	0.17
Processing speed	Experimental	26.06 (9.99)	31.16 (10.34)***	0.50	30.52 (10.21)***	0.44
	Control	19.87 (9.22)	17.83 (9.18)	0.22	19.41 (8.74)	0.05
Self-efficacy for improving memory	Experimental	4.65 (1.64)	5.71 (0.73)***	0.89	4.84 (1.03)	0.14
	Control	5.20 (1.47)	4.93 (1.43)	0.19	4.77 (1.07)	0.34
Self-efficacy for nutrition	Experimental	4.61 (1.76)	5.52 (1.18)**	0.62	5.10 (1.22)*	0.33
	Control	5.13 (1.38)	4.77 (1.65)	0.24	4.80 (1.40)	0.24

Notes: *$P<0.05$, **$P<0.01$, ***$P<0.001$; *d* is the effect size compared with baseline measure. The data in the Baseline, Post-test and Follow-up columns are shown as mean (standard deviation).

Table 4 Nutritional variables of active aging (experimental n=31, control n=33)

Variable	Pre-test, %		Post-test, %		Follow-up, %	
	Experimental	Control	Experimental	Control	Experimental	Control
Nutritional status						
Normal nutritional status*	54.8	57.6	71.0*	42.4	71.0*	56.7
Risk of malnutrition	45.2	42.4	29.0*	57.6	29.0*	43.3
Body mass index*						
Underweight	0.0	3.3	0.0	0.0	0.0	0.0
Normal	16.1	0.0	16.1	0.0	19.4	0.0
Overweight	29.0	56.7	29.0	56.7	29.0	66.7
Obesity class I	32.3	33.3	32.3	36.7	25.8	29.6
Obesity class II	12.9	6.7	12.9	6.7	16.1	3.7
Obesity class III	9.7	0.0	9.7	0.0	9.7	0.0

Note: *$P<0.05$ comparison between experimental and control group.

Both groups were similar for nutritional status at baseline, with 54.8% of the experimental group and 57.6% in the control group having normal nutritional status and 45.2% and 42.4%, respectively, being at risk of malnutrition (Table 4). After the intervention groups were statistically different, in the experimental group decreased the proportion of participants at risk of malnutrition (29%) while increased those with normal nutritional status (71%) and maintained at follow-up. The proportion of controls with normal nutritional status decreased to 42.4% ($P<0.05$) in the post-test but increased back to baseline values at follow-up. However, differences between the experimental and control groups were statistically significant ($P<0.05$) at the post-test and follow-up.

There was a statistically significant difference in body mass index between the two groups at baseline ($P=0.03$), with a higher proportion of overweight participants in the control group, but no changes were observed at the post-test or follow-up assessments.

As shown in Table 5, the experimental group reported improvements in overall quality of life at the post-test assessment ($P<0.01$), with a medium to large effect size ($d=0.63$), which was maintained at follow-up ($P<0.01$, $d=0.63$). Specifically, it was found that participants in the program showed improvements after the intervention (post-test) in quality of life dimensions, health, and functionality ($P<0.01$, $d=0.55$) and social and economic status ($P<0.05$, $d=0.59$), with medium effect sizes of $d=0.55$ and $d=0.59$, respectively, which declined at follow-up to small effect sizes ($d=0.38$ and $d=0.27$). No significant changes in psychological/spiritual or family-specific quality of life dimensions were found in the experimental group. The control group showed no significant changes in any measure of quality of life.

Discussion

The findings show in general that the "I am Active" program promotes improvements in the dimensions of active aging (physical activity, nutrition, and cognitive function) and quality of life in healthy older adults. Specifically, greater effects were observed immediately after the intervention, but some of these decreased at follow-up.

Several studies have focused on identifying factors that contribute to successful lifestyle change. Planning changes in complex behaviors such as diet and physical activity involves a complex and elaborate process of specific

Table 5 Quality of life, outcomes in general and specific domains (experimental n=31, control n=33)

Variable	Group	Baseline	Post-test	*d*	Follow-up	*d*
Quality of life overall	Experimental	25.02 (3.28)	26.80 (2.37)**	0.63	26.67 (1.99)**	0.63
	Control	25.30 (3.33)	24.75 (3.17)	0.17	25.19 (3.00)	0.03
Health and functionality	Experimental	23.79 (4.82)	25.99 (3.21)**	0.55	25.27 (2.95)	0.38
	Control	23.84 (3.80)	23.70 (3.83)	0.04	23.71 (4.54)	0.03
Psychological/spiritual	Experimental	27.15 (3.15)	28.36 (2.29)	0.44	28.12 (2.88)	0.32
	Control	27.51 (3.43)	26.42 (3.57)	0.31	26.31 (2.72)	0.39
Socioeconomic	Experimental	24.87 (3.25)	26.79 (3.27)*	0.59	25.77 (3.50)	0.27
	Control	25.44 (3.96)	24.77 (3.98)	0.17	25.99 (3.45)	0.15
Family	Experimental	25.54 (4.27)	26.84 (2.91)	0.36	26.10 (4.45)	0.13
	Control	25.74 (5.04)	24.92 (4.21)	0.18	25.35 (3.01)	0.10

Notes: *$P<0.05$, **$P<0.01$; *d* is the effect size compared with baseline measure. The data in the Baseline, Post-test and Follow-up columns are shown as mean (standard deviation).

decision-making.[40] Studies have also shown that goals are easier to reach if they are specific and not too broad or general, and there should be sufficient material resources to develop them. In this study, at the end of the intervention, the goals proposed in the physical activity dimension were self–imposed, meaning that they were probably not well planned, which caused that the participants did not followed their own goals. This should be considered in future interventions to achieve better results related to physical activity. Perhaps these types of activity should be performed with other people and not alone. Generally speaking, it has been found from different theoretical models that changes in health behaviors that build up a lifestyle is a process, not an event, and most people relapse at the some point in time.[41]

Regarding cognitive functioning, it is important to note that participants in our program generally had a low level of education (less than primary school), so did not pursue intellectual activities like reading or other cognitively stimulating activities throughout life. The change that the program "I am Active" proposes requires a greater effort for such people and the results might not be seen immediately.

The study program had a larger effect on self-efficacy indicators, which could be explained on the basis of theory. People's beliefs about their efficacy can be instilled and strengthened in four ways, ie, mastery experience, vicarious experience, social persuasion, and judgment of their own psychological state.[42,43]

Through the intervention, the participants experienced personally and directly that they were capable to attain physical activity, good nutritional habits and improved memory, this mastery experience constitutes the most powerful source of self-efficacy. Moreover, the group modality used in the program allowed the participants to observe their classmates making an effort and being successful in their activities (vicarious experience), and this is considered to be the second most active way of developing self-efficacy. Further, the participants in this program were verbally persuaded to aim for active aging (social persuasion); this is the third way of developing self-efficacy but requires a greater effort to develop it. Finally, promotion of positive mood during the program (judgments of their psychological states) probably influenced the participants' judgment about their personal efficacy, and this represents the fourth way of strengthening self-efficacy beliefs.

The program design considered all four sources of self-efficacy when attempting to influence the development of these beliefs in the experimental group. Meanwhile, talking about the control group, it cannot be discarded that they were mainly exposed to the social persuasion or the promotion of positive moods related to their capabilities as part of senior center activities. However, it is difficult to communicate high efficacy beliefs exclusively through these channels, because unrealistic encouragement is rapidly offset by self-doubt and disappointing results of one's efforts when is not followed by a performance accomplishment (a mastery experience), which the participants in the control group did not have access to.[43]

Perceived self-efficacy plays a critical role in human functioning. Beliefs concerning efficacy influence people's thoughts, the course of action they choose to pursue, their challenges and goals, their commitment to the action and the amount of effort invested, the results they hope to achieve for their efforts, the magnitude of their perseverance while facing barriers, resistance to adversity, the level of stress and depression they experience when facing a demanding environment, and the achievements reached.[42]

In this sense, the finding that older adults who participated in the "I am Active" program considered themselves to be more capable of physical activity, to develop good nutrition habits, and improve their memory, is an important predictor of their ability to do so, due to the sense of self-efficacy it can even be considered precedent of behavior.[44] Although self-efficacy for improving memory performance declined during follow-up.

With regard to cognitive functioning, the program had a large impact on processing speed that remained during the follow-up measure, also considered as a mechanism that explains cognitive decline in aging,[45] and slowing of processing speed is generally acknowledged as a hallmark of aging.[46] Nevertheless, cognitive decline is not an inevitable outcome of aging, and efforts to improve processing speed through targeted interventions should be implemented due to its relationship not only with cognitive impairment[46] but also with physical functioning.[47]

An important effect of the program that was still present at follow-up was an improvement in overall quality of life. This component involves greater satisfaction in the areas considered important to people's lives. Quality of life is considered a key goal in both individual and social welfare, especially in the elderly.[48] The "I am Active" program assists older adults to achieve this goal.

"I am Active" had a positive impact on health, psychological components, and cognitive performance; these have been found to be the top three factors explaining active aging, as well as social relationships, biobehavioral components, and

personality, and could be used to guide specific community-based and individually-based interventions.[22]

Active aging is still an issue in development, not only conceptually but also related to the assessment tools and designing interventions. In this sense, it is important to develop valid and reliable scales for assessing active aging in older adults. These tools are needed not only in the community but also in clinical practice settings.[49]

The limitations of this study include use of self-reported measures, with their well-known bias in terms of social desirability and acquiescence. However, this does not mean that self-reported data are invalid, just that these potential limitations should be taken into account when analyzing and interpreting the data.[50] Sample size might be also a limitation. The generalization of our results may be limited by the inclusion criteria and the characteristics of the participants; specifically, our participants were literate and attending senior centers, and comprised mainly women.

Active aging at a political level must involve other strategies focused on individuals in order to successfully overcome the challenges faced by our aging population. In this sense, "I am Active" is the first approach to propose a concrete individual strategy to promote active aging according to the WHO conceptual framework, and should be seen as an opportunity to reinforce the program its self, addressing its weaknesses and strengths in future implementations.

Disclosure

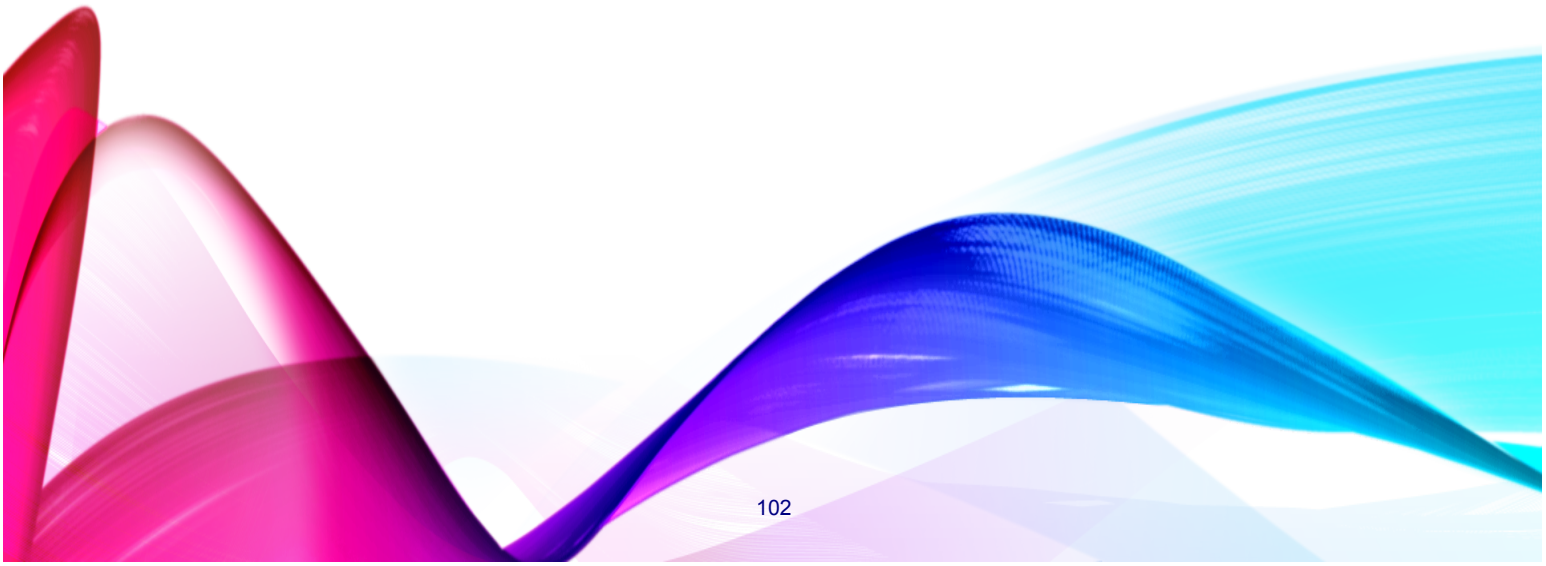
The author reports no conflicts of interest in this work.

References

1. United Nations, Department of Economic and Social Affairs, Population Division. *World Population Ageing 2013.* New York, NY, USA: United Nations; 2013.
2. World Health Population. *Active Ageing.* Geneva, Switzerland: World Health Organization: 2002.
3. Walker A. A strategy of active ageing. *Int Soc Secur Rev.* 2002;55:121–139.
4. Active Ageing Australia [home page on the Internet]. Adelaide, Australia: Government of South Australia [updated 2014 March]. Available from: http://www.activeageingaustralia.com.au. Accessed October 25, 2014.
5. Wilcox S, Dowda M, Leviton LC, et al. Active for Life. Final results from translation of two physical activity programs. *Am J Prev Med.* 2008;35:340–351.
6. Building Healthy Communities for Active Aging National Recognition Program [home page on the Internet]. Durham, NC, USA: United States Environmental Protection Agency [updated 2013 November]. Available from: http://www.epa.gov/research/aging/bhc/index.htm. Accessed October 20, 2014.
7. Ory M, Liles C, Lawer K. Building healthy communities for active aging: a national recognition program. *Generations.* 2009;33:82–84.
8. International Council on Active Aging. [home page on the Internet]. Vancouver, BC, USA: International Council on Active Aging; 2014. Available from: http://www.icaa.cc/index.asp. Accessed October 22, 2014.
9. European Year for Active Ageing and Solidarity between Generations 2012. [home page on the Internet]. Brussels, Belgium: European Union; 2012. Available from: http://www.age-platform.eu/age-policy-work/solidarity-between-generations/lastest-news/1231-2012-european-year-on-active-ageing-and-intergenerational-solidarity. Accessed October 25, 2014.
10. Fernández Ballesteros R, Robine MA, Walker A, Kalache A. Active aging: a global goal. *Curr Gerontol Geriatr Res*. 2013;2013:298012.
11. Fernández-Ballesteros R, Mendoza-Ruvalcaba NM. Toward a definition of successful aging. In: Kruse A, editor. [*Life in Old Age*]. Heidelberg, Germany: Akademische Verlagsgesellschaft AKA; 2010. German.
12. Deep CA, Jaste DV. Definitions and predictors of successful aging: a comprehensive review of larger quantitative studies. *Am J Geriatr Psychiatry*. 2006;14:6–20.
13. Rowe JW, Kahn RL. Human aging: usual and successful. *Science.* 1987;237:143–149.
14. Rowe JW, Kahn RL. *Successful Aging.* New York, NY, USA: Pantheon; 1998.
15. Caprara MG, Molina MA, Schettini R, et al. Active aging promotion: results from the Vital Aging Program. *Curr Gerontol Geriatr Res.* 2013;2013:817813.
16. Estebsari F, Taghdisi MH, Foroushani AR, Ardebili EA, Shojaeizadeh D. An educational program based on the successful aging approach on health-promotion behaviors in the elderly: a clinical trial study. *Iran Red Crescent Med J.* 2014;16:16314.
17. Hooker SP, Seavey W, Weidmer CE, et al. The California active aging community grant program: translating science into practice to promote physical activity in older adults. *Ann Behav Med.* 2005;29:155–165.
18. Foy CG, Vitolins MZ, Case L, et al. Incorporating prosocial behavior to promote physical activity in older adults: rationale design of the Program for Active Aging and Community Engagement (PACE). *Contemp Clin Trials.* 2013;36:284–297.
19. Latorre JM, Serrano JP, Ricarte J, Bonete B, Ros B, Sitges E. Life review based on remembering specific positive events in active aging. *J Aging Health.* 2015;27:140–157.
20. Boyes M. Outdoor adventure and successful ageing. *Ageing Soc.* 2013;33:644–665.
21. Sikora SA. The University of Arizona College of Medicine optimal aging program: stepping in the shadows of successful aging. *Gerontol Geriatr Educ*. 2006;27:59–67.
22. Paúl C, Ribeiro O, Teixeira L. Active ageing: an empirical approach to the WHO model. *Curr Gerontol Geriatr Res.* 2012;2012:382972.
23. Nelson ME, Rejesky WJ, Blair SN, et al. Physical activity and public health in older adults: Recomendation from the American College of Sports Medicine and the American Heart Association. *Med Aci Sports Exerc.* 2007;39:1435–1445.
24. Ahmed T, Haboubi N. Assessment and management of nutrition in older people and its importance to health. *Clin Interv Aging.* 2010;5:207–216.
25. Fernández-Ballesteros R, Botella J, Zamarrón MD, et al. Cognitive plasticity in normal and pathological aging. *Clin Interv Aging.* 2012;7:15–25.
26. Kim EY, Kim KW. A theoretical framework for cognitive and non-cognitive interventions for older adults: stimulation versus compensation. *Aging Ment Health.* 2014;18:304–315.
27. Ritchie K, Artero S, Touchton J. Classification criteria for mild-cognitive impairment: a population-based validation study. *Neurology.* 2001;56:37–42.
28. Flicker C, Ferris SH, Reisberg B. Mild cognitive impairment in the elderly: predictors of dementia. *Neurology.* 1991;41:1006–1009.
29. Leicht H, König HH, Stuhldreher N, et al. Predictors of costs in dementia in a longitudinal perspective. *PLoS One.* 2013;8:1–10.
30. Yesavage JA, Brink TL, Rose T, et al. Development and validation of a geriatric depression screening scale: a preliminary report. *J Psychiatr Res.* 1983;17:37–49.
31. Folstein M, Folstein S, McHugh P. "Mini-Mental State": a practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res.* 1975;12:189–198.

32. Arias-Merino ED, Ortiz GG, Mendoza-Ruvalcaba NM, et al. [El Mini-mental State Examination el efecto de la edad, género y nivel educativo en una población Mexicana]. In: Gutiérrez-Robledo LM, editor. [*Tópicos de Actualización en neurobiología envejecimiento y neurodegeneración*]. Guadalajara, México: Universidad de Guadalajara; 2011. Spanish.
33. Bandura A. Guide for constructing self-efficacy scales. In: Urdan T, Pajares F, editors. *Self-Efficacy Beliefs of Adolescents*. New York, NY, USA: Information Age Publishing; 2006.
34. Vellas B, Guigoz Y, Garry P, et al. The Mini-Nutritional Assessment (MNA) and its use in grading the nutritional state of elderly patients. *Nutrition.* 1999;15:116–122.
35. Global Database on Body Mass Index. BMI Classification [home page on the Internet]. Geneva, Switzerland: World Health Organization [updated 2014 December]. Available from: http://apps.who.int/bmi/index.jsp?introPage=intro_3.html. Accessed October 30, 2014.
36. Wechsler D. *Wechsler Adult Intelligence Scale*. Cuauhtémoc, México: Manual Moderno; 1997.
37. Ferrans CE, Powers M. Psychometric assessment of the Quality of Life Index. *Res Nurs Health.* 1992;15:29–38.
38. Sullivan GM, Feinn R. Using effect size – or why the *P*-value is not enough. *J Grad Med Educ.* 2012;4:279–282.
39. Carson C. The effective use of effect size indices in institutional research. Available from: http://rlrw.bnu.edu.cn/NewsImage/2012410114358.pdf. Accessed October 25, 2014.
40. Sniehotta FF, Schwarzer R, Scholz U, Schüz B. Action planning and coping planning for long-term lifestyle change: theory and assessment. *Eur J Soc Psychol.* 2005;35:565–576.
41. Armitage CJ, Conner M. Social cognition models and health behavior: a structured review. *Psychol Health.* 2000;15:173–189.
42. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev.* 1997;84:191–215.
43. Bandura A. Exercise of personal and collective efficacy in changing societies. In: Bandura A, editor. *Self-Efficacy in Changing Societies*. 2nd ed. Cambridge, UK: Cambridge University Press; 1999.
44. Bandura A. Self-efficacy mechanism in human agency. *Am Psychol.* 1982;37:122–147.
45. Park DC. The basic mechanisms accounting for age-related decline in cognitive function. In: Park D, editor. *Cognitive Aging: A Primer*. New York, NY, USA: Psychology Press; 2012.
46. Salthouse TA. The processing-speed theory of adult age differences in cognition. *Psychol Rev.* 1996;103:403–428.
47. Desjaardins-Crépeau L, Berryman N, Vu TT, et al. Physical functioning is associated with processing speed and executive functions in community-dwelling older adults. *J Gerontol B Psychol Sci Soc Sci*. 2014;69:837–844.
48. Fernández-Ballesteros R, Arias-Merino ED, Santacreu M, Mendoza-Ruvalcaba NM. Quality of life in Mexico and in Spain. In: Powell JL, editor. *The Global Dynamics of Aging.* UK: Nova Science Publishers; 2011.
49. Thanakwang K, Isaramalai S, Hatthakit U. Development and psychometric testing of the active aging scale for Thai adults. *Clin Interv Aging.* 2014;9:1211–1221.
50. Barker C, Pistrang N, Elliott R. Self-report methods. In: Barker C, editor. *Research Methods in Clinical Psychology.* 2nd ed. Wiley Online Library, 2002.

5. Vivir con Vitalidad



5. Vivir con Vitalidad®

El programa "Vivir con Vitalidad"® ha sido desarrollado por Fernández-Ballesteros teniendo sus inicios en 1996 como un curso presencial en la Universidad Autónoma de Madrid, dirigido a personas mayores, plasmado en la Colección Vivir con Vitalidad (2002), convertido en un Curso Multimedia financiado por el Programa Sócrates Minerva (2001-2003), posteriormente presentado como un Open Course Ware de la Universidad Autónoma de Madrid (https://www.uam.es/docencia/ocw/cursos.htm), y valorado en distintos estudios (Caprara, 2005; Caprara, Fernández-Ballesteros, y Alessandri, 2015; Fernández-Ballesteros, Caprara, y García, 2004; Fernández-Ballesteros, Caprara, Iñiguez, y García, 2005a; Fernández-Ballesteros, Caprara, Iñiguez, y García, 2005b; Mendoza-Ruvalcaba y Fernández Ballesteros, 2016).

Su objetivo es promover el envejecimiento activo a través de la enseñanza de conocimientos básicos acerca del envejecimiento, la promoción de estilos de vida saludable (actividad física, nutrición), el entrenamiento de estrategias para optimizar el funcionamiento cognitivo y compensar el declive, optimizar el afecto positivo, emoción y control, así como la promoción de relaciones sociales y participación social a lo largo del ciclo de la vida.

5.1 Principios básicos y Modelo teórico

De acuerdo con Fernández-Ballesteros (2002, 2008) (para una revisión, ver: Caprara y cols., 2013), los principios teóricos básicos que subyacen del programa son:

(1) Existen diferencias sustanciales en las formas de envejecer (normal, bien, patológico), así como conocimiento basado en evidencia de cómo envejecer bien.

(2) La diversidad a través del ciclo de la vida no es aleatoria. Si bien las circunstancias externas son cruciales para el proceso de envejecimiento, el individuo es un agente de cambio, que puede influir en su propio proceso.

(3) La plasticidad es una propiedad del sistema nervioso central así como del organismo humano. Aunque con ciertas limitaciones, la plasticidad permanece a

través del ciclo vital y en la vejez. A lo largo del ciclo de la vida la plasticidad se expresa a través del aprendizaje y la capacidad de modificarse.

(4) La Selección, Optimización y Compensación son mecanismos adaptativos en el proceso de envejecimiento, el conocimiento basado en la práctica, la alta motivación, y la tecnología pueden compensar el declive.

El envejecimiento activo desde el programa Vivir con Vitalidad ha sido conceptualizado como un proceso de adaptación que ocurre a lo largo del ciclo vital que cuenta con cuatro factores: 1) óptima salud e independencia, 2) buen funcionamiento físico y cognitivo, 3) afecto positivo y el control, y 4) la participación social (Fernández Ballesteros, 2008).

Este modelo teórico ha sido probado empíricamente, a través de análisis de ecuaciones estructurales, resultando un modelo de 4 dominios que subyacen al programa (Fernández Ballesteros, 2012). Ver Figura 2.

Los datos para modelo han sido tomados de dos estudios relevantes en los que se han utilizado distintas muestras, diversos métodos, incluyendo el estudio transcultural de concepto implícito de envejecer bien, donde participaron siete países latinoamericanos y tres europeos (n=1189) (Fernández Ballesteros y cols., 2008, 2010); así como datos provenientes del Estudio Longitudinal de Envejecimiento Activo ELEA (Fernández Ballesteros y cols., 2010).

Además del soporte empírico, el modelo cuenta con una fuerte base teórica. Dada la relevancia demostrada del impacto positivo que tiene en la vida de las personas la conservación de la salud y estilos de vida saludables, realizar actividad y entrenamiento cognitivo de manera frecuente en la vida cotidiana, mantener afectos y actitudes positivos a lo largo de la vida, así como participar de manera activa en la comunidad.

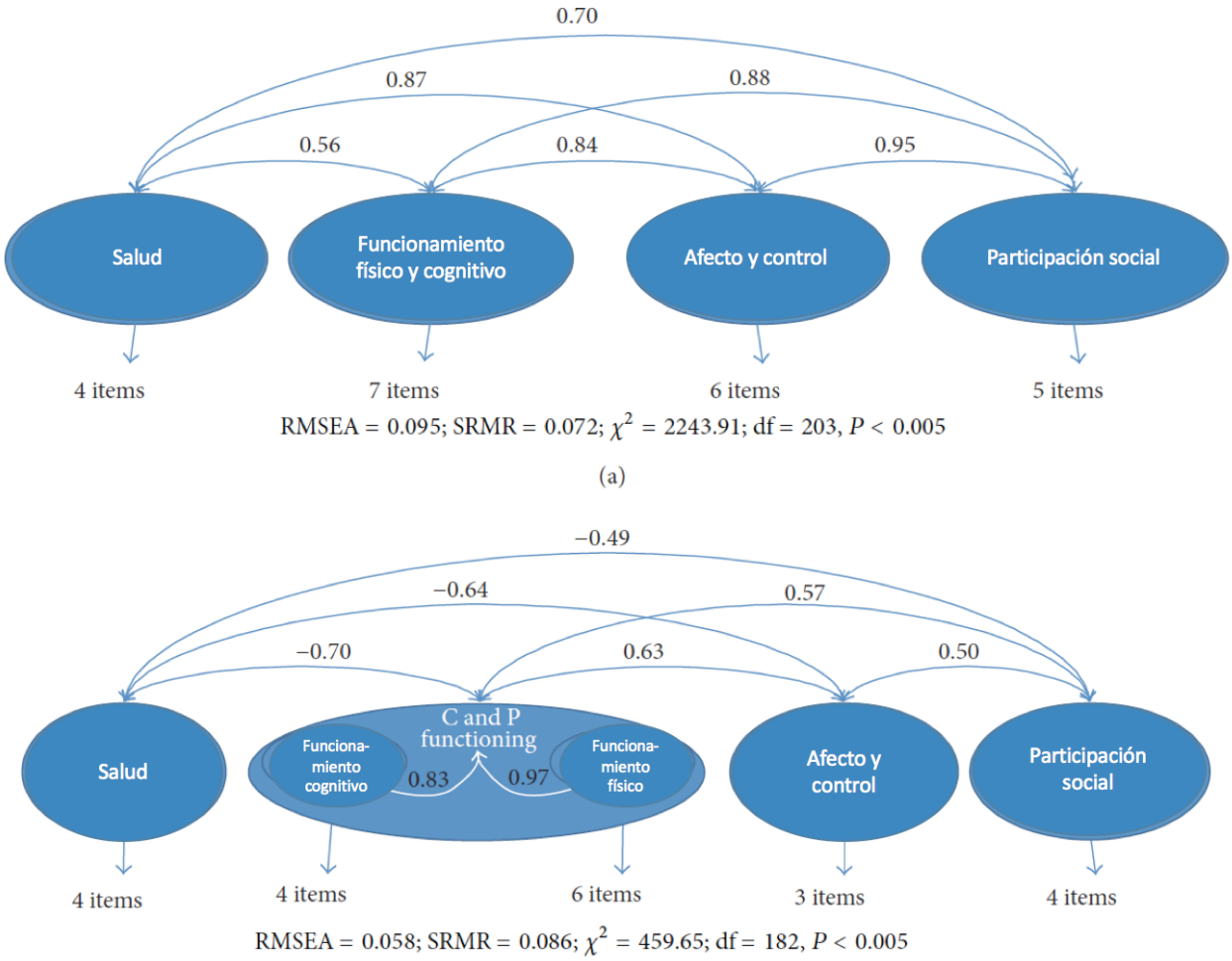


Figura 2. Modelo de Ecuaciones Estructurales de los cuatro dominios de envejecer bien: (a) de conceptos implícitos , y (b) del proyecto ELEA. (Tomado de Fernández-Ballesteros, R. Schettini, M. A. Molina, and M. Santacreu. (2012).

5.2 Versiones de Vivir con Vitalidad®

El programa ha tenido un desarrollo importante y se ha ido actualizando acorde a las nuevas tecnologías de información y aprendizaje para seguir siendo un programa vigente. Como se ha dicho anteriormente, el programa Vivir con Vitalidad tiene 5 versiones: presencial, multimedia, e-Learning, Open Ware Course, y una versión MOOC (Massive On-line Open Course) en construccón.

a) Vivir con Vitalidad – Presencial.

Este formato se ha implementado entre 1996 – 2003 en España. Se desarrolló con el apoyo del Instituto de Mayores y Servicios Sociales (IMSERSO). En esta versión los participantes asisten a reuniones grupales dirigidas por un experto quien imparte de manera presencial las diferentes temáticas. Las sesiones se llevan a cabo dos veces por semana, con una duración de entre 2 y 3 horas cada sesión, durante 3 meses. Tiene una duración total de 70 horas aproximadamente. Para esta versión se editó una colección de 5 textos básicos (Fernández Ballesteros, 2002a) que se utilizan durante el curso. Cada una de las sesiones inicia con una introducción teórica del tema, se aplica una evaluación previa para después realizar ejercicios prácticos relacionados al tema, finalmente se hace una retroalimentación al tema y una conclusión.

Figura 3. Colección de textos Vivir con Vitalidad.

b) Vivir con Vitalidad – Multimedia.

Basado en la versión presencial, se desarrolló una versión Multimedia del programa, bajo el auspicio del Programa Sócrates-Minerva de la Unión Europea, con la colaboración del Consorcio entre NETTUNO (Italia), la Universidad Autónoma de Madrid (España), el instituto de Gerontología de Heidelberg (Alemania), y la colaboración de la Open University (Reino Unido).

El curso se grabó en video (y posteriormente en DVD), con una duración de 50 horas repartidas en 22 temas, dictados por profesores españoles, italianos y alemanes (las voces fueron dobladas al español). En esta versión los participantes atienden a sesiones grupales dos o tres veces por semana, y se disponen a ver los videos en una televisión, donde un instructor está a cargo de preparar el material y del manejo del DVD. Las sesiones tienen la misma estructura que la versión presencial, inicia con una introducción, una pre-prueba, ejercicios prácticos, post-prueba, y retroalimentación y conclusiones.

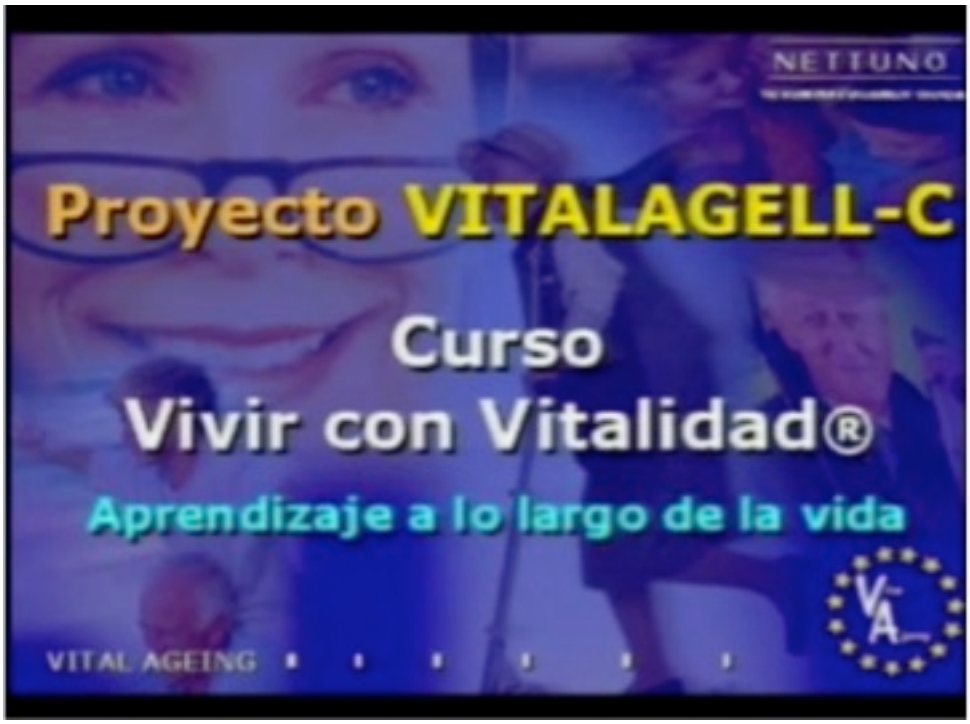


Figura 4. Programa Multimedia (DVD).

c) Vivir con Vitalidad e-Learning.

Es la versión online del programa. Desarrollada en 2010, esta versión fue adaptada transculturalmente para ser aplicada en Cuba, México y Chile, apoyada por el Programa de Cooperación Interuniversitario para Latinoamérica UAM-Santander. Los materiales fueron diseñados para ser usados vía internet e implementados a través de una Plataforma Moodle. Los estudiantes tienen a disponibilidad diversidad de recursos de aprendizaje como son auto-evaluaciones, lecturas, actividades, foros, y tutoriales. El programa es impartido por un tutor virtual y también con el apoyo de un tutor presencial. El curso requiere dedicación de 65 horas durante 3 meses aproximadamente, donde se revisa una unidad cada dos semanas. Cada sesión inicia con una introducción, seguida de un pre-test, lecturas, ejercicios prácticos, foros, tutoriales, y un post-test en cada unidad.

d) Vivir con Vitalidad Open Ware Course (OCW).

Esta versión es apoyada por la Universidad Autónoma de Madrid en el sitio web http://ocw.uam.es/cursos/vivirconvitalidad/index.html. Es una asignatura disponible para cualquier persona que quiera tomarlo alrededor del mundo. Para esta versión se seleccionaron ocho video-lecciones de la versión multimedia, en base a su relevancia para promover el envejecimiento activo. Cada lección incluye contenidos teóricos y prácticos y una evaluación final, así como materiales de apoyo. El curso tiene una duración de 36 horas.

Figura 5. Programa Vivir con Vitalidad Open Course Ware (imagen de página web).

e) Vivir con Vitalidad web-page.

El programa Vivir con Vitalidad cuenta con una página web en el sitio http://www.envejecimientoactivo.es, a la que se puede acceder desde cualquier lugar con acceso a internet.

En éste sitio web se encuentran disponibles todos los materiales (solo en Español) del curso. De forma que pueden ser utilizados por personas mayores para ser auto-administrados, o bien, por profesionales para implementarlos como un programa estructurado en diferentes contextos.

Figura 6. Vivir con Vitalidad *web-site.*

5.3 Temáticas

Vivir con Vitalidad es un programa esencialmente teórico – práctico. Los temas fueron seleccionados al considerar su relevancia para el envejecimiento activo dentro del modelo de 4 factores.

En el Cuadro 1 se muestras las temáticas que incluyen las diferentes lecciones del programa. Las versiones presencial y multimedia involucran todos los temas, para las versiones posteriores se han seleccionado cuidadosamente según su relevancia y corresponden a las cuatro dimensiones teóricas del modelo.

Tabla 1. Lecciones del programa Vivir con Vitalidad según sus diferentes versiones.

Dominio	Lección	Versiones				
		P	**M**	**eL**	**OCW**	**web**
Salud / Funcionalidad	Envejecer bien	X	X	X	X	
	Controle su vida: me cuido y disfruto	X	X	X	X	
	Ejercicio físico: el mejor remedio	X	X		X	X
	Cuide su cuerpo	X	X			X
	Nutrición y salud: coma bien y vivirá mas y mejor	X	X		X	X
Funciona-miento cognitivo	Mejore su memoria: siempre hay tiempo	X	X	X	X	
	Actividad mental: prevención del envejecimiento cerebral	X	X	X		
	La edad creativa	X	X			
	La sabiduría: la expresión de la vida y los años	X	X			
Afecto y control	Siéntase eficaz	X	X	X	X	X
	Piense positivamente	X	X	X		
	Manejo del estrés y la ansiedad	X	X	X	X	X
	Actividades agradables y bienestar	X	X	X	X	X
	La muerte también forma parte de la vida	X	X			
Participación y compromiso social	Como mejorar las relaciones humanas	X	X	X		X
	Apoyo social: los demás también me necesitan	X	X	X		X
	La sexualidad: más allá de la genitalidad	X	X			
	Internet: un nuevo sistema de comunicación	X	X			

P= Presencial, M= Multimedia, eL= e-Learning, OCW= Open Ware Course, web= página web.

5.4 Evaluación

El proceso de evaluación constante en el programa Vivir con Vitalidad ha sido uno de los elementos claves para su desarrollo y evolución.

La evaluación tiene dos vertientes: evaluación sumativa y evaluación formativa.

Con respecto a la evaluación sumativa, se centra el el impacto del programa en las variables de resultado. En las diferentes versiones del programa la evaluación ha tenido variantes leves (ver cuadro 2), sin embargo los resultados principales han sido evaluados de manera consistente con instrumentos claramente definidos:

a. Vida activa / actividades: Escala desarrollada por Díez-Nicolás (1996), explora la frecuencia con que se realizan 24 actividades de tipo intelectual (como leer, resolver crucigramas o rompecabezas), artísticas (como estudiar canto, tocar algún instrumento), sociales (por ejemplo cuidar de alguien, visitar amigos), y actividades domésticas (como limpiar la casa, ver televisión). Las opciones de respuesta van de nada=1 a mucho=4.
b. Percepción del envejecimiento / opiniones acerca del envejecimiento: evalúa el grado de acuerdo con 16 afirmaciones positivas acerca del envejecimiento que incluyen temas relacionados con la autonomía (por ejemplo, seré capaz de solucionar los problemas cuando aparezcan), memoria (ej, mi memoria es tan buena como antes), actitudes (por ejemplo, la vida siempre vale la pena), y percepciones sobre las propias personas (ej. soy capaz de aprender cosas nuevas). Las opciones de respuesta varían de 1=totalmente en desacuerdo hasta 4= totalmente de acuerdo, mayor puntuación indica una mejor percepción.
c. Actividad física / ejercicio físico: Escala tomada de Bruin et al. (1996). En el protocolo administrado se incluye una pregunta sobre el grado de ejercicio (frecuencia y tipo) que re realiza. El formato de respuesta incluye cinco opciones que van desde la ausencia del ejercicio (1) hasta la realización de un ejercicio regular fuerte tres veces por semana. Se selecciona solamente una de las opciones.
d. Hábitos nutricionales: Escala de alimentación tomada de Bruin et al., (1996). La escala tiene dos componentes: Grado de control sobre la

alimentación (sales, azúcares y agua). Valorado con una escala dicotómica (si controla -no controla). Seis preguntas sobre la calidad de la alimentación, mediante la frecuencia y composición de las comidas.

e. Estado de salud: Escala desarrollada por Díez-Nicolás (1996). Consta de dos tipos de indicadores: Estado de Salud *subjetiva* (utilizado en Fernández-Ballesteros, 2004). Son los primeros tres ítems, con una escala de respuesta de 1 a 2 en el primero, y de 1 a 3 en los otros dos (ordenadas por estado de salud de peor a mejor). Salud *objetiva*, refiriéndose número y tipo de problemas de salud, en total 12 ítems sobre problemas específicos de salud. Cada respuesta afirmativa es valorada con un punto.

f. Relaciones sociales: esta escala desarrollada por Díaz-Vega (1987) explora la frecuencia y satisfacción con las relaciones sociales, específicamente con la familia, amigos y vecinos. Para la frecuencia la respuesta varía de 1=menos de una vez por mes hasta 5= varias veces por semana. La satisfacción se evalúa con una escala de 1=no satisfecho, hasta 5= muy satisfecho).

g. Satisfacción con la vida: Se utiliza solo un enunciado para la evaluación del grado de satisfacción que las personas refieren tener con su vida, una vez que se considera tanto lo bueno como lo malo que les ha tocado vivir. La escala varía de 1=nada hasta 4=mucho.

h. Memoria subjetiva: diseñado por Bennet-Levy y Powell (1980), el Cuestionario de Memoria subjetiva incluye 10 ítems que valoran cómo las personas evalúan el funcionamiento de su memoria. La escala de respuesta varía de 1=mal, 2= regular, 3= buena.

i. Uso de mnemotecnia: la Escala de Estrategias de Memoria (Fernández Ballesteros, 1987) estima el grado en el cual las personas utilizan estrategias, expresado en un grado de 1=casi nunca hasta 3=frecuentemente.

j. Balance hedónico: medido con *Positve and Negative Affect Schedule (PANAS)* de Watson y cols. (1988), estima la diferencia entre las frecuencias de los estados emocionales positivos y negativos reportados

por las personas en una escala de 5 puntos, que varía de 1=nunca hasta 5=siempre.

k. Emociones negativas: se utilizó la sección de las emociones negativas del PANAS, que incluye estados como “miedo” y “hostil”.

l. Auto-eficacia para el envejecimiento: esta escala evalúa las creencias de las personas acerca de su propia capacidad para resolver o enfrentar problemas futuros relacionados con la salud, familia, habilidades, y funcionalidad. Incluye 10 ítems por ejemplo: seré capaz de mantener mis funciones intelectuales como hasta ahora, podré resolver los problemas de salud si estos se presentan. Las opciones de respuesta varían de 1=totalmente en desacuerdo a 4=totalmente de acuerdo. Mayor puntuación implica mayor autoeficacia para envejecer. Desarrollada por Fernández-Ballesteros, Zamarrón y Rudigner (2004).

m. Problemas de memoria: explora la frecuencia con que las personas reportan olvidos en una variedad de actividades cotidianas, tal como perder las llaves de casa, hacer actividades, reconocer personas, etc. El rango de respuesta implica si esto le ocurre 1=nunca hasta 5=frecuentemente.

n. Desempeño de la memoria: medido con la Escala de retención de dígitos del WAIS-III-RM. Consta de dos partes de aplicación independiente: Dígitos en orden directo y dígitos en orden inverso. En ambos casos el evaluador lee en voz alta al sujeto una serie de números. En la parte Dígitos de orden directo el sujeto debe repetir la secuencia en el mismo orden en que se ha presentado y en Dígitos en orden inverso debe repetirla en orden inverso. Las partes se aplican por separado. Las secuencias se leen a razón de un número por segundo, procurando que el tono de voz decaiga en el último número de cada secuencia. La prueba termina (tanto la de orden directo como inverso) cuando el sujeto obtenga 0 puntos en los dos intentos de un elemento. Esta medida fue incluida únicamente en la edición aplicada en México.

Por otra parte, la evaluación formativa se lleva a cabo al final de cada sesión. En ella se explora las opiniones de los participantes acerca de los materiales utilizados, el grado de dificultad de la sesión, el formato (imágenes, figuras, y ejemplos), una apreciación general de la sesión y el nivel de satisfacción con la misma.

Específicamente, se pide a los participantes que en una escala de 1 (en desacuerdo) al 4 (de acuerdo) valoren:

- La lección: si les pareció interesante, el nivel de dificultad, la utilidad para la vida diaria, lo novedoso de la lección.
- Ejercicio y ejemplos: si son interesantes, útiles, y el nivel de complejidad.
- Al entrenador: su grado de dominio de la lección, la claridad con la que explica, y la habilidad para captar su atención.
- Gráficos e imágenes: utilidad y nivel de claridad.
- Nivel de comprensión que tuvieron del tema.
- Grado en que fueron aclaradas sus dudas.
- Duración de la sesión (en escala de 3=excesivo a 1=apropiado)
- Evaluación global de la sesión (1= mínimo a 10= máximo)
- Nivel de satisfacción general con la sesión.
- Grado en que consideran que el conocimiento de este tema ha sido o será útil en si vida cotidiana.

5.5 Edíciones y Resultados

El programa Vivir con Vitalidad ha sido aplicado en diferentes ediciones con resultados favorables. En el Cuadro 2 se puede observar un resumen de los datos publicados más relevantes.

La primer publicación de los resultados del programa estuvo dedicada a la versión Multimedia (Fernández-Ballesteros, Caprara, y García, 2004; Fernández-Ballesteros, Caprara, Iñiguez, y García, 2005a). En este estudio cuasi-experimental, se realizó una comparación de los efectos del programa entre personas mayores que vivían en una residencia (n=13), mayores que vivían en la comunidad y eran asistentes a un centro de día (n=44), y un grupo control (n=31) compuesto por personas que asistían al mismo centro de día y que participaban en otras actividades. Los participantes de ambos grupos experimentales, tanto los que vivían en residencia como en comunidad, mostraron efectos positivos en cuanto tener una vida mas activa y tener una mejor percepción acerca del envejecimiento. Adicionalmente los mayores que vivían en la comunidad reportaron realizar mayor actividad física, tener hábitos nutricionales más saludables, y tener mayor satisfacción con la vida. El grupo control por su parte permaneció sin cambios.

En el segundo estudio se llevó a cabo una comparación de las versiones Presencial y Multimedia en personas mayores que vivían en la comunidad, este estudio además constituyó una tesis de doctorado (Caprara, 2005; Fernández-Ballesteros, Caprara, Iñiguez, y García, 2005b). Participaron n=107 personas mayores, n= 44 formaron parte de un grupo que recibió el curso en versión multimedia, n=32 asistieron a la versión presencial, y n=31 conformaron el grupo control. Los participantes en el programa, en ambas versiones, mejoraron significativamente con respecto a tener una vida más activa, así como reportaron una percepción del envejecimiento más positiva. Adicionalmente, los participantes en la versión multimedia reportaron realizar más actividad física, tener mejores hábitos nutricionales y mayor satisfacción con la vida. No se observaron cambios en el grupo control.

Cuadro 2. Estudios previos y resultados del programa Vivir con Vitalidad.

Variable de Resultado	Estudio 1 (VCV-M)			Estudio 2			Estudio 3		Estudio 4		
	R	Com	C	VCV-P	VCV-M	C	VCV-M	C	VCV-P	VCV-C	C
Vida activa	+	+	-	+	+	-	+	-	+	-	-
Percepción del envejecimiento	+	+	-	+	+	-	-	-	+	+	-
Actividad física	-	+	-	-	+	-	+	-	-	-	-
Hábitos nutricionales	-	+	-	-	+	-	+	-	-	-	-
Estado de salud	-	-	-	-	-	-	-	-	-	-	-
Relaciones sociales	-	-	-	-	-	-	+	-	+	-	-
Satisfacción con la vida	-	+	-	-	+	-	-	-	-	-	-
Memoria subjetiva							+	-			
Uso de mnemotecnia							+	-			
Balance hedónico							+	-			
Emociones negativas							+	-			
Auto-eficacia para el envejecimiento									+	+	-
Problemas de memoria									+	-	-
Desempeño de la memoria									+	-	-

R= Residencia, Com.= Comunidad, C= grupo control, CVC-M= Vivir con Vitalidad Multimedia, CVC-P= Vivir con Vitalidad Presencial, CVV-C= Vivir con Vitalidad Combinada (presencial / multimedia).

El tercer estudio nuevamente se centró en la versión Multimedia, este estudio se llevó a cabo bajo las mismas condiciones cuasi-experimentales que los anteriores. Participaron n= 115 mayores, el grupo experimental estuvo conformado por n=73 y el control por n=42 personas mayores. En los resultados se reportaron mejoras significativas, las personas participantes en el programa tenían una vida más activa, realizaban más actividad física y tenían mejores hábitos nutricionales en comparación con los del grupo control. Además reportaron mejoras en las relaciones sociales. Para este estudio se añadieron más variables de impacto con respecto a ediciones pasadas, así se encontraron mejoras en la memoria subjetiva, los participantes reportaron mayor uso de mnemotecnia, mejor balance hedónico y una disminución de emociones negativas, en comparación con el grupo control que permaneció sin cambios (Fernández-Ballesteros, 2005a; Caprara, Fernández-Ballesteros, y Alessandri, 2015).

Posteriormente, en 2012, se implementó la versión e-Learning del programa Vivir con Vitalidad. En este participaron n=88 personas mayores en el grupo experimental y n=42 en el grupo control. Los participantes provenían de programas universitarios para mayores de Chile, Cuba, y México. Los resultados aún no han sido publicados por lo que no se incluyen en esta revisión.

Finalmente, la última publicación del programa Vivir con Vitalidad involucra a población de mayores Mexicanos, en este estudio se replica el diseño cuasi-experimental y se hace una comparación entre la versión presencial y una versión que mezcla lecciones multimedia y presenciales, denominada “Combinada”. Esta última publicación forma parte central de este proyecto de tesis, los detalles del método y resultados obtenidos se exponen a continuación.

5.6 ARTÍCULO ORIGINAL:

Efectividad del programa Vivir con Vitalidad para promover el envejecimiento activo en personas mayores Mexicanas

Referencia:
Mendoza Ruvalcaba, N.M., Fernández Ballesteros, R. (2016). Effectiveness of the vital aging program to promote active aging in Mexican older adults. *Clinical Interventions in Aging*, 11: 1631-1644.

Clinical Interventions in Aging

Dovepress

open access to scientific and medical research

Open Access Full Text Article

ORIGINAL RESEARCH

Effectiveness of the Vital Aging program to promote active aging in Mexican older adults

Neyda Ma Mendoza-Ruvalcaba[1]
Rocío Fernández-Ballesteros[2]

[1]Health Sciences Department, University of Guadalajara, University Center of Tonalá, Tonalá, Jalisco, Mexico; [2]Department of Biological and Health Psychology, Autonomous University of Madrid, Madrid, Spain

Introduction: Aging is not only a population phenomenon but also an experience and an individual reality. Vital Aging® is a program that considers active aging as the lifelong adaptation process of maximizing health and independence, physical and cognitive functioning, positive affect regulation and control, and social engagement. Through its different versions and editions, it has demonstrated being an effective program to promote active aging. The aim of this study is to determine the effectiveness of the "face-to-face" and "combined" versions of the program to promote active aging in Mexican older adults trial.

Methods: Seventy-six older adults aged 60 years and over participated in a quasi-experimental study and were recruited in a senior center to participate in the two experimental conditions: Vital Aging face-to-face (VA-FF) (n=35) and Vital Aging combined (VA-C; multimedia/face-to-face) (n=15), and the remaining 26 adults were assigned to a control group. Pretest and posttest assessments were performed after the theoretical–practical intervention. Mean differences and size effects were calculated for estimating the effect of the program.

Results: At the end of the study, participants showed improvements in the active aging outcome measures. Positive effects were observed in the frequency of intellectual, cultural – artistic, and social activities, perceptions of aging, satisfaction with social relationships, and self-efficacy for aging. Additionally, those who participated in VA-FF showed better memory performance, meta-memory, and a trend to report less memory problems, while older persons in VA-C showed a trend to have better life satisfaction. No effects were observed in physical activity, frequency of social relationships, and subjective health.

Conclusion: Findings show that the Vital Aging program in face-to-face and combined versions encourages active aging in Mexican older persons. These results are in general similar to those found in editions performed in Spain, revealing its consistency as a cross-cultural practical initiative for promoting active aging.

Keywords: Vital Aging, active aging, intervention program, successful aging

Introduction

Population aging is occurring in all the major areas of the world; globally, the share of older people (60 years and older) increased from 9% in 1994 to 12% in 2014, and it is expected to reach 21% by 2050.[1]

There are critically important issues related to the aging society, such as future intergenerational relations and tensions, socioeconomic disparities and inequalities, changes in the structure and function of the family and its capacity to serve the traditional safety-net role, the impact of technology, and the critical importance of adaptation of core societal institutions, including education, work and retirement, housing, transportation, and even the design of the built environment.[2] However, the main concern in an aging population is the fact that age is highly associated with illness

Correspondence: Neyda Ma Mendoza-Ruvalcaba
Health Sciences Department, University of Guadalajara, University Center of Tonalá, CUTONALA, Av. Nuevo Periférico No 555, Ejido San José Tatepozco, CP 48525, Tonalá, Jalisco, Mexico
Tel +52 33 3540 3020 ext 64052
Email nmendoza_ruvalcaba@yahoo.com.mx

and disability.[3,4] The assumption that increasing numbers of older people, especially very old people, per se mean a parallel rise in social protection costs is erroneous; nonetheless, there is an association between advanced old age and disability and, in turn, with health care costs. Therefore, it is important to implement active aging strategies sensitive to this relationship and aim to recognize and prevent ill health and disability,[5] not only at policy level but also at individual level, since aging is not only a population phenomenon but also an experience and an individual reality.[6]

The World Health Organization (WHO) proposed a policy framework that considers active aging as a positive "process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age".[7] This concept was further refined with the addition of "lifelong learning" as a fourth component, which implies the opportunity to acquire and update knowledge and skills in order to stay relevant and better assure personal security. Learning is understood as a renewable resource that enhances the capacity to remain healthy; it can occur in formal contexts (to obtain a grade or diploma), nonformal contexts (through planned activities such as workshops, short courses, and seminars), or informal settings (daily life experiences); lifelong learning is important because the access to information is considered a vital key to active aging.[8] Thus, "active aging" is a global policy proposed by the WHO on the occasion of the *II International Plan of Action on Aging* approved by the United Nations General Assembly in 2002 that enables people to enhance their potential for physical, social, and mental well-being throughout the whole life course and to participate in society according to their needs, desires, and capacities and, at the same time, providing them with adequate protection, security, and care when required.

This new and positive vision of gerontology emerged supported by several scientific research data: 1) the broad plasticity of human organisms across life span,[9,10] 2) the increase of variability of human characteristics across life span,[11] 3) the historical improvement of cognitive and physical characteristics across the last century,[12,13] and finally, 4) the postponement of aging (from a decline and impairment perspective) at population level.[14] This new paradigm is commonly expressed through the concept "active aging" with a wide global variation in the terms used to comprise the notion of "aging well", including active, successful, healthy, optimal, productive, positive, competent aging.[15,16] Although all these terms can be considered synonymous, the concept of active aging and all the others lack a precise universally agreed definition and is commonly used to mean "all things to all people".[17,18]

This lack of scientific consensus has resulted in a variety of different applied strategies. Currently, there have been developed and implemented intervention programs devoted to promote active aging among older persons. Although it is a complex and heterogeneous concept, active aging is reduced to one outcome variable in most intervention programs: physical activity. In this sense, several interventions have been designed to promote active aging. For example, "Active Ageing Australia" promotes physical activity for a lifetime of health and well-being, considering that physical activity enriches persons' lives by supporting their ability to maintain independent, healthy lifestyles and participate in and contribute to the community.[19] Other intervention programs encourage physical activity by offering a personal choice-based and telephone-assisted training program,[20] enhancing pro-social behavior and volunteerism,[21] or outdoor activities (such as biking),[22] as strategies for promoting active aging.

On the other hand, some programs understand active aging only as emotional well-being, promoting life satisfaction. For example, through interventions centered in life review strategies on specific positive events[23] or in education programs of care and exercises as strategies for enhancing emotional well-being, health, and therefore active aging.[24]

Under a different approach, intervention programs aim to promote active aging by enhancing social and intergenerational relationships[25,26] or fostering empowerment and participation.[27]

Nevertheless, there are few documented intervention programs designed to promote active aging as a multidimensional concept as well as with empirical support.

Vital Aging® is an individual active aging promotion program that considers active aging as the lifelong adaptation process of maximizing four domains: 1) health and independence, 2) physical and cognitive functioning, 3) positive affect and control, and 4) positive engagement.[28] This four-domain model of active aging has been tested through structural equation modeling with several samples and different methods[29] and strongly supported by scientific literature through evaluation research.[30–37] Moreover, developments from this program have had positive evaluation results such as the "I am Active program", involving a wider concept of active aging, including physical activity, healthy nutritional habits, cognitive functioning, and self-efficacy for aging, as core dimensions of active aging.[38]

Vital Aging (*Vivir con Vitalidad*) was initially developed in 1996 as a face-to-face course at the Autonomous University of Madrid. The objective of the program is to promote active aging through teaching basic knowledge about aging, promoting healthy behavioral lifestyles (physical exercise, nutrition), training strategies for optimizing

cognitive functioning and compensating potential cognitive declines, optimizing positive affect, emotion, and control, and promoting social relationships and social engagement throughout the life course using new technologies.

Currently, the program has different versions:

1) Vital Aging face-to-face (VA-FF), participants attend 2/3-hour group sessions, held twice a week during 10 weeks. Sessions are conducted by an expert trainer.
2) Vital Aging-M (VA-M) is the multimedia version of the program where participants attend group sessions to watch video lessons on TV taught by European experts from Germany, Italy, and Spain (voices were translated to Spanish); a trained tutor is in charge of the DVD's management.
3) Vital Aging-eLearning (VA-eL) is the online version and was adapted cross-culturally; materials were designed to be used via Internet and implemented through the Learning Management System Moodle Platform. Students had a set of learning resources such as self-evaluation, reading, activities, forums, and tutorials. The course required ~65 hours during 3 months. It was implemented between 2010 and 2012.
4) Vital Aging-OCW (Open Course Ware), the course is supported by the Autonomous University of Madrid in the website http://ocw.uam.es/cursos/vivirconvitalidad/index.html; it is an open course available to any people around the world. For this version, eight video lessons were selected from the multimedia version materials, based on their relevance to promote active aging; each one includes practical and theoretical contents and a final assessment, as well as supporting materials. Course duration is 36 hours.
5) Vital Aging has also an Internet webpage http://www.envejecimientoactivo.es, where materials are available for older adults (only in Spanish), and in this way, they can be self-administrated or can be used by professionals and implemented as a structured program.

For more details about Vital Aging program versions, basic principles, and theoretical model.[36]

The first implemented version was VA-FF; it was developed at the Autonomous University of Madrid as an open life course and delivered in several editions since then. The program was later transformed into a multimedia version based on the administration of video lessons with the same structure and content as in the VA-FF.

Previous quasi-experimental studies have showed the effectiveness of all different versions. Outcome measures of active aging for all the studies included active life, perceptions of aging, physical activity, nutrition, health, social relationships, and life satisfaction. Supplementary material details information of previous outcomes of different editions of Vital Aging program, shown in Table S1.[31–37]

Finally, although active aging is a world concept defined by the WHO and tested cross-sectionally across the world,[39] it continues being a cross-cultural challenge; thus, it is necessary to implement intervention strategies for helping older adults to reach this goal. In this sense, although the Vital Aging program is considered as an effective tool in European contexts, which has empirically demonstrated its efficacy to promote active aging through its different editions, versions, and target populations,[36] the program has never been implemented in Latin American population. The objective of this study is to determine the effectiveness of the Vital Aging program to promote active aging in Mexican older adults.

Methods

The intervention

This is a quasi-experimental design with two experimental conditions; the sample was recruited by convenience (based on the institutional conditions and resources provided for the study). This is a semi-randomized study;[40] participants were assigned to each experimental condition according to their choice, considering the schedule of the intervention. The study adopted an inter-group–intra-group comparison and pretest–posttest assessment.

As the first experimental condition, the VA-FF version was implemented, where a previously trained gerontologist conducted the sessions implemented as standard classes; supporting materials were taken from the basic texts "*Vivir con Vitalidad*" (Vital Aging).[41] Nineteen 2-hour sessions were held twice a week during 10 weeks. The total duration of this version was 38 hours. Details of the lessons are shown in Table 1.

For the second experimental condition, the multimedia version was originally considered; however, important observations from previous experiences were taken into account. Due to technical issues when dubbing into Spanish, the videos originally in English or Italian were not applied directly as video lessons; instead of it, they were taught in the face-to-face format. For this reason, this second experimental condition was a combined version and named "Vital Aging combined" (VA-C) because it combines multimedia and face-to-face sessions of the program. However, it is important to underline that the program was mainly multimedia (11 lessons) and only one-third of it (seven lessons) was conducted in face-to-face format (Table 1).

VA-C procedures for implementation were followed according to each version. Lessons in multimedia format were implemented in a classroom equipped with TV, DVD, and a sound system; participants attended video lessons

Table 1 Intervention lessons and format of the two versions of the Vital Aging® program applied in Mexico

Domain	Lesson	VA-FF	VA-C
Behavioral health and independence	Aging well	F	M
	Enjoy the control of your life	F	M
	Regular exercise: the best formula for aging well	F	M
	Taking care of your body: self-responsibility and self-management (i)	F	F
	Nutrition and health: good food, good life (i)	F	F
Cognitive functioning	Improve your memory	F	M
	Train your mind: how to prevent brain aging (e)	F	F
	The creative age (i)	F	F
	Wisdom: the expression of lifelong learning (e)	F	F
Affect, control, and coping styles	Self-efficacy perception	F	M
	Positive thinking	F	M
	Coping with stress	F	M
	Pleasant activities and well-being	F	M
	Death is also part of life	F	M
Social participation and engagement	How to improve human relationships (i)	F	F
	Social support: the others need me too (i)	F	F
	Sexuality: beyond genitality	F	M
	Internet: a new system of communication	F	M

Notes: (i) Italian language; (e) English language.
Abbreviations: VA-FF, Vital Aging face-to-face; VA-C, Vital Aging combined; F, face-to-face format; M, multimedia format.

taught by experts from Spain. A trainer was in charge of the DVD's management; supporting materials were available for the participants in a Web site and they were encouraged to download them; lessons were followed by simultaneously watching TV, listening to the expert, and reading the scripts. Lessons in face-to-face format were according to this version and described earlier. Multimedia sessions were carried out three times a week and face-to-face sessions twice a week. The total duration of the program was 30.5 hours (16.5 hours for multimedia and 14 hours for face-to-face sessions).

Contents and format of each session were implemented according to the four-domain model of active aging, and the detailed contents of each session were published elsewhere.[36]

In the control group, participants remained on a wait list, participating in the meantime in social activities organized by the senior center. After the study, they participated in the face-to-face version of the Vital Aging program if they were interested.

For both experimental conditions, VA-FF and VA-C, each session has a similar structure; it starts with a theoretical introduction of the lesson remarking its importance for a better aging based on scientific evidence. Later on, practical strategies are described and reviewed, and practical exercises are implemented. Finally, each session ends with some conclusion and feedback.

Participants

Participants were recruited from a senior center (*Centro de Atención y Desarrollo Integral del Pensionado CADIP, Dirección de Pensiones del Estado de Jalisco* [Center for Comprehensive Care and Development of the Pensioner from the Direction of Pensions of the State of Jalisco]) for retired persons, former workers of the state government (eg, teachers). Participants lived in Guadalajara city, the capitol of Jalisco State located in the western region of Mexico.

Recruitment was carried out through the notice board and dissemination in social events in the center. Participants were included in the study only if they met the following criteria: 60 years and older, literate, and willing to participate. A written informed consent was obtained from all subjects. The Project was reviewed and approved by the Academic Board of the Doctoral Program on Behavioral Sciences, at Psychology Faculty, University Autonomous of Madrid.

The total sample was composed of 90 older persons, who were assigned to an experimental condition (Figure 1). The sample size was determined by convenience, limited by the capacity, schedule, and resources provided by the senior center. Due to institutional conditions, intervention was carried out in two trials; in a first trial, VA-FF, VA-C, and a control group were included, and in a second trial, VA-FF and a control group were included; n=18 participants composed each group. For this study, participants in the two VA-FF groups, as well as the two control groups, were joined for analyses purposes, and there was no difference between the groups. The total groups included VA-FF =36, VA-M =18, and control group =36 participants.

The final sample was composed of n=76, all women with an age range of 60–84 years (mean age =65.66 years,

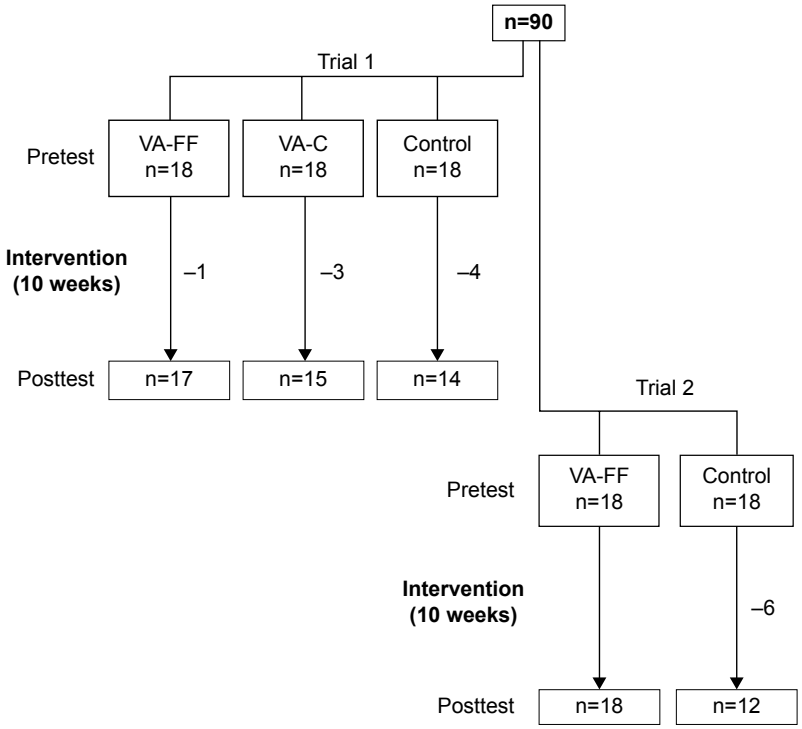


Figure 1 Flow chart of the participants in the study.
Abbreviations: VA-FF, Vital Aging face-to-face; VA-C, Vital Aging combined version.

SD =6.48 years), VA-FF version involved n=35 participants (mean age =64.7 years, SD =5.8 years), VA-C version n=15 (mean age =63.9 years, SD =4.5 years), and control group n=26 (mean age =67.8 years, SD =6.4 years). Attrition for each experimental condition was VA-FF =2.77%, VA-C =16.7%, and control =27.8%. There were no differences in age and education between participants and those who did not complete the study; their exclusion from both the study and the analysis did not alter the similarity between groups.

Procedure

A pretest was conducted for outcome measures, then intervention was developed during 10 weeks, and the posttest was conducted at the end of the program. A formative evaluation was also included, at the end of each lesson, for exploring participants' opinions about materials, difficulty, format, and general appreciation of the lesson and their satisfaction.

Outcome measures

Participants from VA-FF, VA-C, and control groups were evaluated at baseline and posttest. A previously trained psychologist applied an assessment battery. Personal appointments were made, and participants were interviewed at the senior center. For comparison purposes, the assessment was based on a battery designed for the program and used in previous studies; these variables were considered primary outcomes, which include the following:

1) Active life explores the frequency of performing 24 different activities: intellectual (eg, reading, solving crossword puzzles or puzzles), art (eg, studying singing, playing an instrument), social (eg, caring someone else, visiting friends), and domestic (eg, cleaning the house, watching TV). Response options range from nothing =1, some =2, much =3, and pretty much =4.[42]
2) Perceptions of aging explores the degree of agreement with 16 positive statements of aging; typically, they include topics related to aging such as autonomy (eg, I will solve problems when they appear), memory (eg, my memory is as good as before), attitude (eg, life is always worth), and perception of one's action (eg, I am able to learn something new). Response options range from 1= strongly disagree to 4= strongly agree, the higher the score the better the opinion.
3) Physical exercise explores the level and frequency of physical activity done in the last month; answers range from 1= sedentary to 5= intense exercise >3 times a week.[43]
4) Frequency of social relationships; this scale explores the frequency of social activities with family, friends, and neighbors. Response options range from 1= less than once a month to 5= several times a week.[44]

5) Satisfaction with social relationships is a measure about the degree of satisfaction about social relationships with family, friends, and neighbors (1= not satisfied to 5= very satisfied).[44]
6) Life satisfaction refers to the current level of satisfaction about the own life expressed by the person after considering both the good and the bad things he or she had lived. The scale ranges from 1= none to 4= very much, where a higher score indicates greater life satisfaction.
7) Self-efficacy for aging assesses the people's beliefs about their own capability to solve or cope future problems related to the own health, family, abilities, and functionality. It includes 10 items such as "I will maintain my intellectual functioning such as now" and "I could solve a health problem if emerged". Answer options range from 1= strongly disagree to 4= strongly agree, where a higher score means better self-efficacy for aging.[43]

In addition, the following secondary outcomes were assessed for all participants in order to explore a broader impact of the program:

1) Subjective health explores the current self-perception of health, considered as 4= very good, 3= good, 2= regular, 1= poor.
2) Memory objective performance, measured by Digit Span Backward Subtest.[45]
3) Frequency of memory problems explores how often people report forgetfulness on a variety of daily activities, such as losing the house keys, doing activities, recognizing people, etc. The range of answers implies that this happens 1= never to 5= very often.

Data analyses

Statistical analyses were performed with SPSS software version 18 (Chicago, IL, USA). Data were processed to obtain descriptive statistics (proportions, mean value, and standard deviation) from demographic and outcome variables. Intergroup comparisons were tested by one-way analysis of variance (ANOVA). A repeated-measures ANOVA with a Greenhouse–Geisser correction was conducted to determine if means in outcome variables differed statistically significantly between time points (pretest and posttest). Cohen's *d* was estimated to determine the effect size classified as small (d=0.2), medium (d=0.5), and large ($d \geq 0.8$).[46] For formative evaluation, data from 19 sessions were averaged for each version of the program.

Results

The socio-demographic characteristics of participants in the two experimental and the control groups are shown in Table 2. The groups were comparable for age, marital status, and education.

The evaluation study starts by a formative evaluation. With this purpose, both versions of the program were compared in order to know older adults' perception about different conditions of each version (lesson characteristics, proposed exercises, trainer abilities, graphics and images presented, understanding and doubts, duration, general satisfaction, and usefulness) of the Vital Aging program as well as their satisfaction. Results are shown in Table 3. A few but important differences between the two experimental conditions can be observed. Participants in the combined version (VA-C) considered that the lessons reviewed in each session during the program were more interesting and new, compared to those who participated in the face-to-face (VA-FF) version ($P<0.05$). In the same sense, they evaluated both the exercises and the examples used during the program as more interesting ($P<0.05$). In general, older adults who participated in the version VA-C (which combined multimedia and

Table 2 Socio-demographic characteristics of the participants

Variable	VA-FF (n=35), % (n)	VA-C (n=15), % (n)	Control (n=26), % (n)	*P*-value
Age, years (mean ± SD)	64.7±5.8	63.9±4.5	67.8±6.4	0.156[a]
60–64	62.9 (22)	60.0 (9)	46.2 (12)	0.368[b]
65–69	20.0 (7)	26.7 (4)	26.9 (7)	
70–74	5.7 (2)	13.3 (2)	3.8 (1)	
75+	11.4 (4)	0.0 (0)	23.1 (6)	
Marital status				0.447[b]
Married	33.4 (12)	53.3 (8)	38.5 (10)	
Single[c]	65.7 (23)	46.7 (7)	61.5 (16)	
Education				0.204[b]
High school and below	23.5 (9)	6.7 (1)	30.8 (8)	
Above high school	76.5 (26)	93.4 (14)	69.2 (18)	

Notes: [a]ANOVA. [b]Pearson's chi-square. [c]Includes never married, widow, divorced, separated.
Abbreviations: SD, standard deviation; ANOVA, analysis of variance; VA-FF, Vital Aging face-to-face; VA-C, Vital Aging combined.

Table 3 Comparison of the formative evaluation in face-to-face and combined versions

Variable	Face-to-face	Combined (face-to-face/ multimedia)	Total
Lesson (1= strongly disagree to 4= strongly agree)			
Interest	3.80	3.89*	3.83
Difficulty	1.35	1.50	1.39
Usefulness for daily living	3.73	3.77	3.74
Novelty	3.26	3.43*	3.31
Exercises and examples (1= strongly disagree to 4= strongly agree)			
Interesting	3.73	3.83*	3.76
Useful	3.72	3.77	3.74
Complicated	1.45	1.49	1.46
Trainer (1= strongly disagree to 4= strongly agree)			
Mastery on the lesson	3.78	3.70	3.76
Clear description	3.79	3.69	3.76
Ability to attract attention	3.78	3.76	3.77
Graphics (1= strongly disagree to 4= strongly agree)			
Useful/facilitate understanding	3.71	3.71	3.71
Images (1= strongly disagree to 4= strongly agree)			
Useful/facilitate understanding	3.70	3.72	3.71
Understanding (1= strongly disagree to 4= strongly agree)			
I think I understood the lesson	3.63	3.61	3.62
Doubts (1= strongly disagree to 4= strongly agree)			
Do you have questions to the trainer?	1.26	1.22	1.25
Duration (3 excessive to 1 appropriate)	1.99	1.98	1.98
Global evaluation (1 minimum to 10 maximum)	9.85	9.85	9.85
General satisfaction (1= strongly disagree to 4= strongly agree)	3.64	3.77*	3.68
They consider that the knowledge gained in this program has been or will be useful in their daily lives (1= strongly disagree to 4= strongly agree)	2.50	2.88*	2.72

Notes: *$P<0.05$ (Student's *t*-test). Data are shown as mean.

face-to-face sessions) reported being more satisfied with the program, compared to those participating only in the face-to-face sessions ($P<0.05$).

Table 4 shows the effect size of outcome variables. The results of inter-group comparisons showed that there were no significant differences in pretest in almost all variables. Differences between VA-FF and control groups were found only in active life ($P<0.01$) and perception of aging ($P<0.001$), where the control group had a better score. However, these differences were not maintained in the posttest comparison due to the significant improvement of VA-FF after the intervention. Inter-group comparisons in the posttest showed no significant differences between groups in any variable; only in the memory performance, VA-FF group reported better performance than the control group ($P<0.05$).

On the results of intra-group comparisons, regarding the performance of activities or active life, participants in the VA-C version reported a significant increase in frequency of activities ($F_{1,11}=7.427$, $P=0.02$, partial $\eta^2=0.403$), with a medium effect size of $d=0.68$; in the VA-FF group, a trend of improvement in activities was observed ($F_{1,30}=3.805$, $P=0.06$, partial $\eta^2=0.113$) with a small effect size ($d=0.25$), while the control group remained with no significant changes.

Perceptions on aging improved significantly in participants of both VA-FF ($F_{1,30}=121.41$, $P=0.000$, partial $\eta^2=0.802$) and VA-C ($F_{1,11}=55.298$, $P=0.000$, partial $\eta^2=0.834$) versions, with very large effect sizes of $d=1.95$ and $d=2.10$, respectively. No significant changes were reported in the control group ($P=0.255$).

No effects in physical activity, subjective health, or life satisfaction were found in either versions of the Vital Aging program ($P>0.05$), although a medium effect size in life satisfaction was observed ($d=0.51$) in the VA-C group.

Regarding social relationships, although a significant increase on the frequency of relationships with family, friends, and neighbors was not observed ($P>0.05$), participants of the living version VA-FF reported higher satisfaction in their social relationships after the program ($F_{1,30}=7.142$, $P=0.013$, partial $\eta^2=0.215$), with a medium effect size of $d=0.49$, meanwhile participants in the combined version and the control group remained without significant changes.

Table 4 Effect sizes of outcome measures of the two versions of Vital Aging program (VA-FF, n=35; VA-C, n=15; control, n=26)

Variable	Group	Pretest	Posttest	*P*-value	*d*
Active life	VA-FF	2.10±0.41**	2.20±0.38	0.060	0.25
	VA-C	2.21±0.35	2.50±0.50	0.020	0.68
	Control	2.40±0.55**	2.24±0.53	0.083	0.30
Perceptions of aging	VA-FF	2.63±0.39***	3.37±0.37	0.000	1.95
	VA-C	2.82±0.25	3.47±0.37	0.000	2.10
	Control	2.91±0.26***	3.07±0.53	0.255	0.41
Physical activity	VA-FF	2.68±1.40	2.68±1.35	1.000	0.00
	VA-C	3.08±1.08	3.08±0.90	1.000	0.00
	Control	2.69±1.53	3.06±1.48	0.232	0.25
Life satisfaction	VA-FF	3.20±0.61	3.30±0.65	0.375	0.16
	VA-C	3.17±0.71	3.58±0.90	0.096	0.51
	Control	3.38±0.71	3.56±0.72	0.333	0.25
Frequency of social relationships	VA-FF	3.85±1.14	4.07±1.10	0.386	0.20
	VA-C	3.33±1.43	3.75±1.21	0.241	0.32
	Control	3.75±1.43	3.62±1.36	0.609	0.09
Satisfaction with social relationships	VA-FF	3.32±0.78	3.71±0.82	0.013	0.49
	VA-C	3.30±0.71	3.66±0.66	0.097	0.53
	Control	3.52±1.01	3.60±0.91	0.742	0.08
Subjective health	VA-FF	3.03±0.73	3.17±0.65	0.380	0.20
	VA-C	3.00±0.77	3.09±0.83	0.769	0.11
	Control	2.69±1.01	2.75±1.12	0.817	0.06
Memory performance	VA-FF	5.28±1.16	5.79±0.90*	0.019	0.50
	VA-C	5.09±1.13	5.09±1.30	1.000	0.00
	Control	5.06±1.12	4.81±1.83*	0.483	0.17
Frequency of memory problems	VA-FF	2.71±0.63	2.54±0.58	0.074	0.28
	VA-C	2.92±0.47	2.79±0.70	0.551	0.22
	Control	2.63±0.86	2.43±1.05	0.345	0.21
Self-efficacy for aging	VA-FF	2.72±0.53	3.09±0.46	0.000	0.75
	VA-C	2.98±0.67	3.36±0.61	0.000	0.59
	Control	2.90±0.32	3.02±0.77	0.333	0.22

Notes: *d* is the effect size; data are shown as mean ± standard deviation. For inter-group comparisons: *$P<0.05$, **$P<0.01$, ***$P<0.001$.
Abbreviations: VA-FF, Vital Aging face-to-face; VA-C, Vital Aging combined.

Considering the effects of the program on the participant's memory, those in the VA-FF version reported a significant improvement on their memory performance after the intervention ($F_{1,30}$=67.77, P=0.019, partial η^2=0.708), with a medium effect size of d=0.50, and a trend to report less frequency of memory problems ($F_{1,30}$=3.429, P=0.074, partial η^2=0.106), with a small effect size of d=0.28. In contrast, those who participated in the VA-C version and the control group remained without significant changes in memory outcomes.

On the other hand, both VA-FF ($F_{1,30}$=29.265, P=0.000, partial η^2=0.520) and VA-C ($F_{1,11}$=34.385, P=0.000, partial η^2=0.775) reported a significant improvement in self-efficacy for aging, with the effect sizes being large for both versions of the program (d=0.75 and d=0.59, respectively). No change was observed in the control group.

Conclusion

The study's findings show that the Vital Aging program in the "face-to-face" and "combined" (multimedia/face-to-face) versions improves some active aging indicators or outcomes in Mexican older persons. Specifically, after both versions, participants reported significant higher frequency of cultural, intellectual, and social activities than the control group and had better views about aging, more satisfaction with social relationships, and better self-efficacy for aging. Older adults in VA-FF also reported better memory performance, a better perception of it, and a trend to have less memory problems, while older persons in VA-C showed a trend to have better life satisfaction.

These results are, in general, similar to those in Spanish editions, which reveal the consistency of the program in different populations and place the program as an effective cross-cultural intervention to promote active aging.

Specifically, in this study, it was found as an outcome the increase of activities or active life in older adults participating in the program; this finding is consistent with the reports of previous editions, whether in a face-to-face[33,34] or multimedia version.[30–32,37] In addition to this evidence, a version combining both formats is also effective. The fact

of being involved on a variety of activities (cultural/artistic, intellectual, social) is important in old age, due to its impact on different dimensions of life. For example, in a review that analyzed qualitative, quantitative, and mixed methods, including different artistic activities such as music and painting, it was found that artistic engagement could contribute to health and quality of life in older adults.[47] In the same way, it has been reported that active participation in arts such as dance, expressive writing, music (singing and instrumental), theater arts, and visual arts has been related to mental and physical improvements in memory, creativity, problem solving, everyday competence, reaction time, balance/gait, and quality of life.[48]

A remarkable finding in this study is the improvement in perceptions of aging, which is consistent in all previous editions of the Vital Aging program, whether face-to-face or multimedia versions, in community or nursing home settings.[30–35] Besides, in this study, it was found that a combined (VA-C) version is also effective in promoting positive views about aging. This is a significant outcome of the program because the evidence from other studies has shown that the ideas older adults hold about themselves, as aging people, have an influence on their own aging process. Self-perception of aging is strongly influenced by the beliefs held both by the society about older adults and by themselves about the group of older adults.[28] In this sense, research has shown that ideas about aging were good predictors of health and self-perception of aging predicts longevity.[49] Moreover, it has been found that individuals with positive self-perception of aging lived an average of 7.5 years longer than those with negative self-perceptions of aging.[50] In this sense, results of this study had shown that Vital Aging program encourages positive beliefs about aging (in general) and the own aging process (in particular), which finally promotes a healthy and active aging. In sum, there is strong evidence that the improved perception of aging is associated with health and longevity.

Regarding the impact of the Vital Aging program in social relationships, this study failed (as well as previous editions) in promoting more frequent social relationships, perhaps because the Vital Aging program participants had previously strong social ties. Nevertheless, in this study, it was found that the group who participated in the face-to-face version reported greater satisfaction with social relationships. This result may be influenced due to the positive and good relationship among the participants in the group, but this is difficult to distinguish by the program effect itself. Particularly, the Unit "Social participation and engagement" proposes very specific guidelines on how to improve social relationships (including assertive communication with practical exercises, for example), underlines the importance of providing social support to others (not only to receive it), and emphasizes the need of the active participation of older adults in the society and its impact for the other generations. The lessons of this Unit were taught in face-to-face format for both intervention groups and seem to have had an effect on a greater social relationships satisfaction.

The effects of the Vital Aging program related to the physical activity are controversial when compared to previous editions. In this study, no significant effects were found, while in previous studies, significant results were reported only in the multimedia format and when it is applied specifically in community settings.[30,32] Physical activity is a complex behavior to promote, which involves a complex and elaborate process of decision making.[51] Commonly, health promotion interventions seek to increase levels of physical activity by influencing personal and educational factors that contribute to physical activity behavior. However, the determinants and background of physical activity are diverse and include awareness of the physical activity message and its benefits, attitudes, and intentions toward being active, as well as supra-individual factors such as policies, environments, and cultural norms that facilitate physical activity.[52] These factors should be considered in order to have a better impact in promoting physical activity, due to its importance to reach active aging.

Additionally, in this study, outcome variables that have not been studied previously were included, in order to explore the effects of the program in other important domains of active aging. Variables were memory (objective and subjective) and self-efficacy for aging. Both reported improvements only in the face-to-face format of the Vital Aging program.

Self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Perceived self-efficacy beliefs determine how people feel, think, motivate themselves, and behave. Such beliefs produce these diverse effects through four major processes. These include cognitive, motivational, affective, and selection processes.[53]

Specifically, self-efficacy for aging has been studied in the Vital Aging program to examine to what extent it can be trained and improved. In this context, self-efficacy for aging involves the conviction for achieving a well aging by preventing and solving health problems, maintaining physical function (independence), controlling emotions, solving social relationships problems (if they appear), memory and cognitive issues, and the sense of being capable of accomplishing a well aging in the future. In sum, self-efficacy

beliefs are strongly related to successful aging because they contribute to perceive age-related situations not as threats but as challenges, and they also support individuals to remain committed to selected goals, and self-efficacy perceptions seem to have strong associations with health and survival.[28] In this study, positive outcomes with the largest effect sizes suggest that older persons strongly believe that they can achieve an active aging, and this is an important predictor of their ability to do so; due to the sense of self-efficacy, it can even be considered precedent of behavior.[54] Therefore, the perception of self-efficacy for aging is related to the process of active aging.[28]

Regarding the memory improvements, results of the Vital Aging program are relevant due to memory, and specifically working memory, that is considered a basic mechanism that explains age-related decline in cognitive function,[55] and subjective memory is considered a predictor of the performance of memory itself.[56] Moreover, differences of the effectiveness between versions could be explained by the format itself. Although face-to-face version implies a major interaction between trainers and classmates, a combined format (multimedia and face-to-face) introduces variability in techniques and strategies for education and training, which could be more stimulating and innovative for older adults, besides the idea of being involved in an international program with international trainers (evident in lesson taught by Spaniard or Italian experts). This fact could explain that the version combining multimedia and living format was better evaluated, and participants reported more satisfaction than those participating only in face-to-face sessions.

The limitations of this study include that the generalization of the results may be limited by the inclusion criteria and the characteristics of the participants; in this case, they could be considered with exceptional conditions and do not necessarily represent the Mexican older adults. Participants were only women, had higher education, and received a pension; these conditions could represent an advantage and facilitate better conditions to get benefits from the program. However, the original version of Vital Aging was designed for older adults with these characteristics (Spaniards), and then this represents a first approach, which allows a realistic idea about how the program should be adapted for being successfully implemented in a different population and being a cross-cultural effective program. Sample size might also be a limitation; in this sense, further interventions are required involving larger samples. Due to this study not incorporating any blinding procedures, it must be acknowledged that the likelihood of differential treatment or assessment of outcomes, may represent bias. However, other methodologic precautions recommended to minimize potential bias have been incorporated, such as ensuring that groups involved were treated equally, and outcomes were measured as objectively as possible.[57] These limitations may influence that the program still have a modest impact on some outcome variables; however, this is a first approach to measuring the effectiveness of the Vital Aging program as a cross-cultural applied strategy to promote active aging, where the strengthens and challenges of the intervention begin to being identified.

Finally, active aging might be considered as a global strategy in the sense that it could be good for citizens of all ages because it promotes healthy life styles, but also, in terms of maximizing personal development and empowerment. Therefore, it could increase the quality of life by getting the best from human capital, extending community participation and solidarity, avoiding intergenerational conflicts, and creating a fairer, more inclusive society. Active older persons are a resource for their families, their communities, and the economy,[5] although there is almost no acknowledgment of the substantial positive contributions and potential productivity of an aging society.[2]

Aging as a human process is not a random phenomenon, the individual is an agent of his/her own aging process, in this sense, the capacity for aging well, healthy, and active comes, in a certain extent, from decisions taken by individuals themselves as well as their behavioral repertoires learnt across the life span.[6] According to this statement, consistent results of the Vital Aging program (both face-to-face or combined format) place it as a useful cross-cultural tool for promoting active aging in older adults.

Acknowledgment

Project PSI2014-52464-P from the Ministry of Economy and Competitiveness (MINECO) in Spain supported this work.

Disclosure

The authors report no conflicts of interest in this work.

References

1. United Nations. *World Population Situation in 2014*. New York, NY: United Nations; 2014.
2. Rowe JW. Successful aging of societies. *J Am Acad Arts Sci*. 2015; 144(2):5–12.
3. Prohaska TR, Anderson LA, Binstock RH. *Public Health for an Aging Society*. Baltimore, MA: Johns Hopkins University Press; 2012.
4. World Health Organization. *World Report on Ageing and Health*. Luxemburg: WHO; 2015.
5. Walker A. A strategy of active ageing. *Int Soc Secur Rev*. 2002;55: 121–139.

6. Fernández Ballesteros R, Robine MA, Walker A, Kalache A. Active aging: a global goal. *Curr Gerontol Geriatr Res*. 2013;2013:298012.
7. World Health Population. *Active Ageing*. Geneva, Switzerland: World Health Organization; 2002.
8. International Longevity Centre ILC. Active Ageing: A Policy Framework in Response to the Longevity Revolution. Brazil: ILC; 2015.
9. Lerner RM. *On the Nature of Human Plasticity*. New York, NY: Cambridge University Press; 1984.
10. Fernández-Ballesteros R, Botella J, Zamarrón MD, et al. Cognitive plasticity in normal and pathological aging. *Clin Interv Aging*. 2012;7:15–25.
11. Stawski RS, Smith J, MacDonald SWS. Intraindividual variability and covariation across domains in adulthood and aging: contributions to understand behavior, health and development. In: Dielh M, editor. *Handbook of Intraindividual Variability Across the Life Span*. New York, NY: Routledge; 2015:xix, 371.
12. Schaie KW. Developmental Influences on Adult Intelligence: The Seattle Longitudinal Study. New York, NY: Oxford University Press; 2005.
13. Schaie KW. What can we learn from longitudinal studies of adult development? *Res Hum Dev*. 2005;2:133–158.
14. Vaupel JW, Carey JP, Christensen K, et al. Biodemographic trajectories of longevity. *Science*. 2009;280:855–860.
15. Fernández-Ballesteros R. *Geropsychology. European Perspectives for an Ageing World*. Gottingën: Hogrefe & Huber; 2007.
16. Fernández-Ballesteros R, Molina MA, Schettini R, Santacreu M. The semantic network of aging well. In: Robine J-M, Jagger C, Crimmins EM, editors. *Healthy Longevity. Annual Review of Gerontology and Geriatrics*. Vol. 33. New York, NY: Springer; 2013.
17. Foster L, Walker A. Active and successful aging: a European policy perspective. *Gerontologist*. 2015;55(1):83–90.
18. Walker A, Maltby T. Active ageing: a strategic policy solution to demographic ageing in the European Union. *Int J Soc Welf*. 2012;17:117–130.
19. Active Ageing Australia [home page on the Internet]. Adelaide, Australia: Government of South Australia [updated December 2015]. Available from: http://www.activeageingaustralia.com.au. Accessed May 30, 2016.
20. Hooker SP, Seavey W, Weidmer CE, et al. The California active aging community grant program: translating science into practice to promote physical activity in older adults. *Ann Behav Med*. 2005;29(3):155–165.
21. Foy CG, Vitolins MZ, Case L, et al. Incorporating prosocial behavior to promote physical activity in older adults: rationale design of the Program for Active Aging and Community Engagement (PACE). *Contemp Clin Trials*. 2013;36(1):284–297.
22. Boyes M. Outdoor adventure and successful ageing. *Ageing Soc*. 2013;33:644–665.
23. Latorre JM, Serrano JP, Ricarte J, Bonete B, Ros B, Sitges E. Life review based on remembering specific positive events in active aging. *J Aging Health*. 2015;27(1):140–157.
24. Estebsari F, Taghdisi MH, Foroushani AR, Ardebili EA, Shojaeizadeh D. An educational program based on the successful aging approach on health-promotion behaviors in the elderly: a clinical trial study. *Iran Red Crescent Med J*. 2014;16(4):16314.
25. Horowitz BP, Wong SD, Dechello K. Intergenerational service learning: to promote active aging, and occupational therapy gerontology practice. *Gerontol Geriatr Educ*. 2010;31(1):75–91.
26. Sikora SA. The University of Arizona College of Medicine optimal aging program: stepping in the shadows of successful aging. *Gerontol Geriatr Educ*. 2006;27(2):59–67.
27. Martinez-Maldonado ML, Correa Muñoz E, Mendoza-Nuñez VM. Program of active aging in a rural Mexican community: a qualitative approach. *BMC Public Health*. 2007;7:276.
28. Fernández Ballesteros R. *Active Aging: The Contribution of Psychology*. Göttingen: Hogrefe; 2008.
29. Fernández Ballesteros R, Schettini R, Molina MA, Santacreu M. *Testing a Four Domain Model of Aging Well*. Madrid: Autonomous University of Madrid; 2012.
30. Fernández-Ballesteros R, Caprara MG, García LF. Vivir con Vitalidad-M: un programa europeo multimedia [Vital aging-M: an European multimedia program]. *Int Soc*. 2004;13:63–85. Spanish.
31. Fernández-Ballesteros R, Caprara MG, Iñiguez J, García LF. Vital aging-M: an European multimedia programme. *Psychol Spain*. 2005;9:1–12.
32. Fernández-Ballesteros R. Evaluation of "Vital Aging-M": a psychological program for promoting optimal aging. *Eur Psychol*. 2005;10(2):146–156.
33. Caprara MG. *Envejecimiento con éxito: valoración de un programa* [Successful aging: evaluation of a program] [PhD thesis]. Madrid: Autonomus University of Madrid; 2005.
34. Fernández-Ballesteros R, Caprara MG, Iñiguez J, García LF. Promoción del envejecimiento activo: efectos del programa «Vivir con vitalidad»® [Promoting active ageing: effects of the «Vital living» programme]. *Rev Esp Geriatr Gerontol*. 2005;40(2):92–102.
35. Caprara MG, Fernandez-Ballesteros R. *Promoting Active Aging: New Effects of Vital Aging Program*. Madrid: UDIMA; 2012.
36. Caprara MG, Molina MA, Schettini R, et al. Active aging promotion: results from the Vital Aging Program. *Curr Gerontol Geriatr Res*. 2013;2013:817813.
37. Caprara MG, Fernández-Ballesteros RF, Alessandri G. Promoting aging well: evaluation of Vital-Aging-Multimedia Program in Madrid, Spain. *Health Promot Int*. 2016;31(3):515–522.
38. Mendoza-Ruvalcaba NM, Arias-Merino ED. "I am active": effects of a program to promote active aging. *Clin Interv Aging*. 2015;10:829–837.
39. Fernández-Ballesteros R, García LF, Abarca D, et al. Lay concept of aging well: cross-cultural comparisons. *J Am Geriatr Soc*. 2008;56(5):950–952.
40. Silverman WA. Patient preferences and randomized trials. *Lancet*. 1994;344(8928):1023.
41. Fernández-Ballesteros. *Vivir con Vitalidad [Vital Aging]*. Madrid: Pirámide; 2002.
42. Díez-Nicolás J. *Los Mayores en la Comunidad de Madrid* [The elderly in the community of Madrid]. Spain: Obra Social Caja de Madrid; 1996.
43. Fernández-Ballesteros R, Zamarrón MD, Rudinger G, et al. Assessing competence: the European survey on aging protocol (ESAP). *Gerontology*. 2004;50(5):330–347.
44. Diaz-Veiga P. Assessment of social support [Evaluación del apoyo social]. In: Fernandez-Ballesteros R, editor. *El Ambiente: Análisis Psicológico* [The enviroment: psychological analyses]. Madrid: Pirámide; 1987:125–149.
45. Wechsler D. *Wechsler Adult Intelligence Scale*. Cuauhtémoc, México: Manual Moderno; 1997. Spanish.
46. Carson C. *The Effective Use of Effect Size Indices in Institutional Research*. Available from: http://rlrw.bnu.edu.cn/NewsImage/2012410114358.pdf. Accessed November 8, 2015.
47. Fraser KD, O'Rourke HM, Wiens H, Lai J, Howell C, Brett-MacLean PA. Scoping review of research on the arts, aging, and quality of life. *Gerontologist*. 2015;55(4):719–729.
48. Noice T, Noice H, Kramer AF. Participatory arts for older adults: a review of benefits and challenges. *Gerontologist*. 2014;54(5):741–753.
49. Wurm S, Tesch-Römer C, Tomasik MJ. Longitudinal findings on aging-related cognitions, control beliefs and health in later life. *J Gerontol B Psychol Sci Soc Sci*. 2007;62(3):156–164.
50. Levy BR, Slade MD, Kunkel SR, Klas SV. Longevity increased by positive self-perceptions of aging. *J Pers Soc Psychol*. 2002;83(3):261–270.
51. Sniehotta FF, Schwarzer R, Scholz U, Schüz B. Action planning and coping planning for long-term lifestyle change: theory and assessment. *Eur J Soc Psychol*. 2005;35:565–576.

52. Shilton T, Bauman A, Bull F, Sarmiento O. Effectiveness and challenges for promoting physical activity globally. In: McQueen DV, editor. *Global Perspectives on Health Promotion Effectiveness*. New York, NY: Springer; 2007:87–106.
53. Bandura A. Self-efficacy. In: Ramachaudran VS, editor. *Encyclopedia of Human Behavior*. Vol. 4. New York, NY: Academic Press; 1994:71–81.
54. Bandura A. Self-efficacy mechanism in human agency. *Am Psychol*. 1982;37:122–147.
55. Park DC. The basic mechanisms accounting for age-related decline in cognitive function. In: Park D, editor. *Cognitive Aging: A Primer*. New York, NY: Psychology Press; 2012:3–22.
56. Cavanaugh JC. Metamemory from a social-cognitive perspective. In: Park D, editor. *Cognitive Aging: A Primer*. New York, NY: Psychology Press; 2012:3–22.
57. Karanicolas PJ, Farrokhyar F, Bhandari M. Blinding: who, what, when, why, how? *Can J Surg*. 2010;53(5):345–348.

Supplementary materials

Table S1 Previous editions and outcomes of different versions of the Vital Aging program

Variables	Study 1: VA-M[1,2]			Study 2[5,6]			Study 3[3,4]	
	Residence	Community	C	VA-FF	VA-M	C	VA-M	C
Active life	+	+	–	+	+	–	+	–
Perceptions of aging	+	+	–	+	+	–	–	–
Physical activity	–	+	–	–	+	–	+	–
Nutritional habits	–	+	–	–	+	–	+	–
Health status	–	–	–	–	–	–	–	–
Social relationships	–	–	–	–	–	–	+	–
Life satisfaction	–	+	–	–	+	–	–	–
Subjective memory							+	–
Mnemonic strategies							+	–
Hedonic balance							+	–
Negative emotions							+	–

Notes: + indicates improvements; – indicates no changes.
Abbreviations: VA-M, Vital Aging multimedia; VA-FF, Vital Aging face-to-face; C, Control group.

Regarding the multimedia version, it has been tested with consistent outcomes. In a first study, its efficacy was compared in different contexts, including community-dwelling older persons (n=44), living in residential context (n=13), and a control group (n=31); results showed an increased frequency of cultural, intellectual, and social activities and a more positive view about aging in community and residential participants compared to those in the control group.[1,2] Besides, those in community setting improved their nutrition habits, physical activity, and had better life satisfaction. Results remained in a 6-months follow-up with positive changes in health in the community group. No effects were reported in social relationships. A later study confirmed the impact of VA-M; it was implemented during 3 months. Seventy-three older adults participated in a 35-hour video lesson. Pretest and post-test were conducted comparing intervention and control groups. Results showed that participants in VA-M program improved in subjective health, general activities, frequency of physical exercise, and diet quality; in addition to improvements found in the previous editions, better subjective memory, use of mnemonic strategies, hedonic balance, frequency of social relationships, and fewer negative emotions (measures included only in this study) were reported.[3,4]

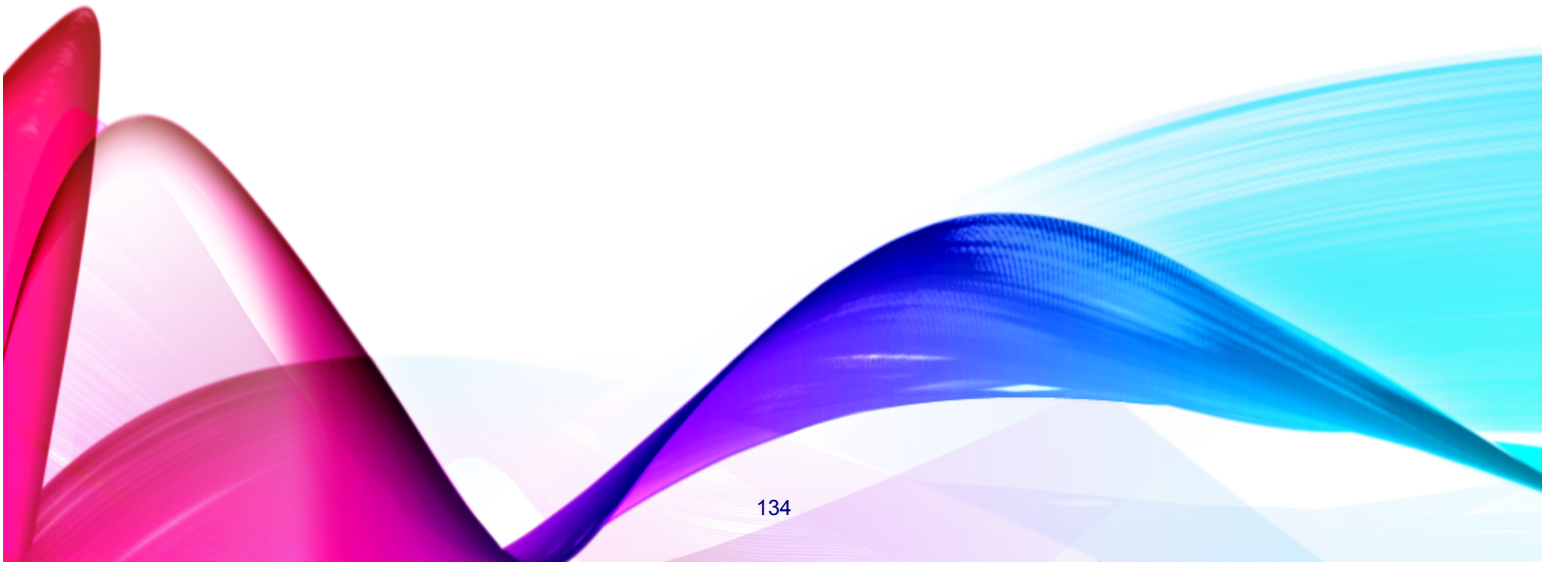
A separate study compares VA-FF (n=28) and VA-M (n=25) and a control group (n=37) in community-dwelling older persons. Once again, improvements in the frequency of cultural, intellectual, and social activities and a more positive view about aging were reported. In addition, participants in the multimedia version reported more physical activity, better nutrition habits, and life satisfaction, compared to those in the face-to-face version. No effects were reported in social relationships and health.[5,6]

Regarding VA-eL, it was implemented between 2010 and 2012 through the learning management system, Learning Management System Moodle Platform. After several changes with the purpose to have an adapted cross-cultural program, it was launched at four participating universities: Autonomous University of Madrid, Catholic University of Chile, La Habana University, and the National Autonomous University of Mexico. Preliminary results obtained in the Spain subsample indicate that participants reported greater emotional balance and higher leisure and productive activities; the report has not been completed yet.[7]

References

1. Fernández-Ballesteros R, Caprara MG, García LF. Vivir con Vitalidad-M: un programa europeo multimedia [Vital aging-M: an European multimedia program]. *Int Soc*. 2004;13:63–85. Spanish.
2. Fernández-Ballesteros R, Caprara MG, Iñiguez J, García LF. Vital aging-M: an European multimedia programme. *Psychol Spain*. 2005; 9:1–12.
3. Fernández-Ballesteros R. Evaluation of "Vital Aging-M": a psychological program for promoting optimal aging. *Eur Psychol*. 2005;10(2): 146–156.
4. Caprara MG, Fernández-Ballesteros RF, Alessandri G. Promoting aging well: evaluation of Vital-Aging-Multimedia Program in Madrid, Spain. *Health Promot Int*. 2016;31(3):515–522.
5. Caprara MG. *Envejecimiento con éxito: valoración de un programa* [Successful aging: evaluation of a program] [PhD thesis]. Madrid: Autonomus University of Madrid; 2005.
6. Fernández-Ballesteros R, Caprara MG, Iñiguez J, García LF. Promoción del envejecimiento activo: efectos del programa «Vivir con vitalidad»® [Promoting active ageing: effects of the «Vital living» programme]. *Rev Esp Geriatr Gerontol*. 2005;40(2):92–102.
7. Caprara MG, Molina MA, Schettini R, et al. Active aging promotion: results from the Vital Aging Program. *Curr Gerontol Geriatr Res*. 2013; 2013:817813.

6. Discusión y conclusiones



6. Discusión y Conclusiones

Esta tesis presenta una compilación de textos científicos publicados cuyo tema central es el envejecimiento activo. Se incluyeron revisiones teóricas y estudios empíricos, desarrollados en torno a personas mayores mexicanas y su contexto.

La primer línea relevante que se aborda es la definición conceptual del envejecimiento activo. Actualmente la controversia en torno al concepto sigue vigente. Los términos más utilizados son “activo” (*active*), “exitoso” (*successful*), y “saludable” (*healthy*).

El concepto de “activo” ha sido mantenido por la OMS como una estrategia global y principalmente política, cuyos pilares son la salud, la participación, y seguridad (OMS, 2002), y en una revisión posterior se ha incluido el aprendizaje a lo largo de la vida como el cuarto pilar (ILC-BR, 2015), que implica la importancia del acceso a la información y formación como un elemento clave no solo para coadyuvar en la empleabilidad de las personas, sino para el reforzamiento del bienestar. Sin embargo, recientemente la OMS (2016) ha propuesto un plan de acción en envejecimiento y salud donde el término “activo” queda desdibujado, mientras el concepto clave es el envejecimiento saludable *(“healthy”),* definido como el proceso del desarrollo y mantenimiento de las habilidades funcionales que promueven el bienestar en la vejez. Como señala Fernández-Ballesteros (en prensa), en esta nueva conceptualización, el elemento central es la habilidad funcional, determinada por las capacidades intrínsecas de las personas (la combinación de todos las capacidades físicas y mentales), factores ambientales relevantes, y la combinación entre ambos. Lo cual supone un cambio en el modelo teórico y conceptual mantenido por la OMS hasta el momento.

Por otra parte, el término envejecimiento “exitoso” plantea el cumplimiento de una serie de condiciones o características (de salud, físicas, funcionales, cognitivas y sociales) que una persona mayor debe reunir para ser caracterizada con envejecimiento exitoso.

La falta de consenso conceptual sigue vigente en la actualidad.

Lo que si aparece comúnmente aceptado es que el contexto es de gran importancia para las formas de envejecer, lo cual se hace evidente en uno de los trabajos antecedentes (Fernández Ballesteros, Arias Merino, Santacreu, Mendoza Ruvalcaba, 2010). Del estudio del contexto, se presentó además un análisis de la prevalencia de Envejecimiento Exitoso así como sus factores asociados, para este estudio se tomaron como referencia los criterios de Rowe y Kahn (1997). El resultado revela una prevalencia global de 12.6%, que se encuentra por debajo del rango promedio reportado en España (Fernández-Ballesteros et al., en su estudio ELEA informan de entre un 41% y 15% de personas mayores envejecen con éxito, el rango varía por la utilización de multi-métodos y dependiendo de si los criterios utilizados son subjetivos u objetivos); así mismo es comparable con la reportada en otros países Europeos (Hank, 2010).

Con respecto a las promoción de envejecimiento activo, la revisión de los programas psicosociales dedicados a la promoción de este tipo de envejecimiento, dejan claro que el impacto de la falta de consenso teórico trasciende hacia la falta de homogeneidad en las estrategias y técnicas prácticas para propiciar el envejecimiento activo.

En la comparación de *Vivir con Vitalidad*® con el resto de los programas incluidos en el capítulo de revisión de antecedentes, un dato relevante es que “Vivir con Vitalidad®” fue el primer programa de intervención que, bajo una perspectiva psicosocial, se propuso como objetivo promover el envejecimiento activo y además evaluó de manera sistemática su eficacia, también es el único programa que tiene diferentes ediciones y diferentes versiones.

Contrario a los programas que se centran en una sola dimensión para promover el envejecimiento activo, típicamente la actividad física, el entrenamiento cognitivo o la educación en salud; Vivir con Vitalidad integra de manera armoniosa elementos tanto de las dimensiones conductuales o de estilo de vida (como hacer ejercicio), como la psicológica (como el funcionamiento cognitivo, el afecto y control), y la dimensión social (como la participación social), para promover una forma positiva de envejecer.

Específicamente, al comparar los dos programas implementados para esta tesis, “Soy Activo” y “Vivir con Vitalidad”, se encuentran semejanzas y diferencias relevantes.

Ambos se fundamentan el concepto de envejecimiento activo promovido por la OMS (2002) y son programas multidimensionales.

Soy Activo tiene una visión muy focalizada en tres elementos básicos del envejecimiento activo: actividad física, nutrición, y funcionamiento cognitivo. Mientras que *Vivir con Vitalidad*® tiene una perspectiva mucho más amplia, donde además de las anteriores, se involucran más dimensiones significativas para el proceso de envejecimiento como son el afecto y el control, el estado de salud (objetivo y subjetivo), la percepción del envejecimiento, las habilidades y participación social.

Las temáticas son mucho más variadas y nutridas en *Vivir con Vitalidad*® en comparación con *Soy Activo*, sin embargo al tener menos temas, la práctica y el entrenamiento está más estructurado y focalizado en el segundo.

En su aplicación en México, ambos tuvieron una buena acogida por parte de los participantes. Resulta complicado hacer una comparación de sus efectos ya que se midieron diferentes variables de resultado, sin embargo, se puede corroborar que en general ambos reportaron mejoras en las dimensiones específicas que se proponían mejorar como indicadores de envejecimiento activo, posicionando su eficacia.

De la comparación interna de las diferentes ediciones de *Vivir con Vitalidad*® se puede observar la consistencia del programa. La vida activa, que implica que las personas realicen constantemente actividades, ha reportado mejoras constantes en todos los estudios desarrollados.

De la misma manera es constante la mejora en la percepción del envejecimiento en las diferentes ediciones del programa, este resultado es muy relevante debido a que resalta la pertinencia del programa para combatir percepciones erróneas y estereotipos hacia la vejez y el envejecimiento.

En los diferentes estudios se observan además impactos que son diferentes entre las versiones del programa. La actividad física, por ejemplo, muestra mejores

resultados en las ediciones de la versione multimedia que en la presencial; lo mismo ocurre con la satisfacción con la vida, que no ha mostrado impacto positivo en la versión presencial, mientras que en dos estudios en versión multimedia, las personas han reportado mejoras significativas. De la misma manera los hábitos nutricionales han mejorado en los participantes en la versión multimedia, mientras en la presencial no se han observado cambios.

Indudablemente los impactos diferenciales del programa a través de sus diferentes ediciones deben ser analizados con mayor cuidado para plantear sus mecanismos, y posteriormente las mejoras necesarias tanto en el método, como operación y evaluación del programa, para con ello potenciar el impacto del mismo.

Adicionalmente se debe abrir el espectro hacia potenciales áreas de impacto que puede tener *Vivir con Vitalidad*®, ya que al ser un programa tan amplio y comprehensivo probablemente la batería básica de evaluación no alcance a detectar su alcance. Esto se puede observar ya que en el estudio realizado por Caprara, Fernández-Ballesteros y Alessandri (2015), se incluyeron medidas adicionales a las de los estudios previos, y se observó que además de los efectos anteriormente reportados, el programa tenía un impacto positivo en la memoria subjetiva, en el uso de mnemotecnia, mejor balance hedónico y disminución de emociones negativas. De la misma manera en el último estudio (que se reporta en esta tesis) se incluyeron nuevas medidas, en las que se encontraron efectos positivos en la autoeficacia para el envejecimiento, disminución de problemas de memoria y mejor desempeño en tareas de memoria (Mendoza-Ruvalcaba y Fernández-Ballesteros, 2016).

Estos hallazgos muestran que el impacto del programa *Vivir con Vitalidad*® es probablemente más amplio de lo que se planteaba de inicio, y que es necesario plantear un espectro más extenso hacia otras dimensiones donde el programa puede tener efectos positivos.

Por otra parte, después del análisis del proceso de aplicación del programa Vivir con Vitalidad en México, se han encontrado tanto puntos fuertes como puntos débiles y áreas de mejora.

Entre las principales fortalezas se encuentra su carácter multidimensional, que permite la mejora en diferentes dimensiones del envejecimiento y por lo tanto una mejora integral en la vida de las personas. Adicionalmente la característica de ser un programa teórico-práctico permite a los participantes la comprensión del proceso de envejecimiento humano, ya que aporta los conocimientos para potenciar el desarrollo, y a través de los ejercicios prácticos ofrece un entrenamiento para lograr un mejor envejecimiento; se podría decir que el programa brinda a los participantes las respuestas a *¿qué? ¿por qué? ¿para qué? ¿cuándo?* y *¿cómo?,* que son relevantes para hacer del envejecimiento individual una experiencia positiva y libre de discapacidad. Otra fortaleza es la gran aceptación del programa por parte de las personas mayores que han participado en las versiones presenciales, multimedia y combinada, quienes lo valoran como un programa novedoso, interesante y de gran utilidad en la vida diaria, cuyos contenidos son accesibles y pertinentes a las necesidades en la vejez. En cuanto al formato de las diferentes versiones del programa, específicamente la *Open Course Ware* (OCW) hace que el programa sea accesible desde cualquier parte del mundo.

En esta misma línea se puede señalar que una de las debilidades del programa, es la accesibilidad al mismo, ya que su diseño está más enfocado para ser cursado por personas mayores escolarizadas, por lo que personas no-alfabetizadas o con niveles bajos de escolaridad pueden tener dificultades para cursarlo. En este mismo sentido las personas sin acceso a internet, tienen una gran dificultad de acceso a la versión OCW.

Estas debilidades delinean áreas de mejora en torno a la accesibilidad y el nivel de las personas a quien va dirigido. Adicionalmente es necesario mejorar el doblaje de los videos en la versión multimedia, concretamente los videos donde un instructor extranjero (italiano o alemán) es el encargado de impartir la sesión. En la misma versión multimedia, y con la finalidad de llegar a más personas, se podrían hacer doblajes en varios idiomas (incluido el español latinoamericano), para adoptar los modismos propios de las regiones y que el programa esté mejor adaptado culturalmente.

En aras de mejorar el programa, adicionalmente se podría considerar una actualización de los temas que se imparten para incluir nociones mas actualizadas sobre los temas ya incluidos, además de plantear la inclusión de temas nuevos que cuando el programa fue diseñado (hace poco más de 20 años) cuando todavía no existían dispositivos inteligentes ni las redes sociales, no se habían considerado. De la misma manera ahora se podrían utilizar aplicaciones electrónicas (apps) en tableas o teléfonos móviles como procedimientos de intervención y evaluación de Vivir con Vitalidad®, por ejemplo para el entrenamiento físico e intelectual.

De la misma manera, las técnicas y contenidos dirigidos a temas que no han sido consistentes en su impacto deberían ser revisados para implementar estrategias más adecuadas y con mayor eficacia, por ejemplo, aquellas dirigidas a mejorar el estado de salud (aunque esta quizá tuviera un impacto a mediano o largo plazo), la satisfacción con la vida, o las relaciones sociales.

En el mismo sentido, las estrategias de evaluación deberían revisarse ya que las utilizadas podrían ser poco sensibles al cambio o no evaluar de la mejor manera el impacto del programa, al menos mediante datos objetivos.

Metodológicamente los estudios mediante los cuales se ha evaluado la eficacia del programa tienen también algunas debilidades que podrían ser superadas, por ejemplo, implementar diseños experimentales (con asignación aleatoria de los sujetos a condiciones experimentales) en lugar de cuasi-experimentales, y lo que sería muy relevante, incluir medidas de seguimiento a mediano y largo plazo, para estimar el alcance del programa de una manera más precisa.

Finalmente, la aplicación de una adaptación del Programa *Vivir con Vitalidad* ® en población de personas mayores Mexicanas, refuerza su potencial valor como un programa transcultural, que aunque requiere adaptaciones de la versión original española, cumple con el objetivo de impulsar una mejora en las condiciones de vida de las personas mayores, mediante la oportunidad de mejorar la forma de envejecer mediante el paradigma de un envejecimiento activo.

7. Referencias

7. Referencias

Arias Merino, E.D., Mendoza Ruvalcaba, N.M, Arias Merino M.J., Cueva Contreras, J., Vázquez Arias, C. (2012). Prevalence of successful aging in the elderly in Western Mexico. *Current Gerontology and Geriatrics Research*, 2012: 6p.

Atchley, R.C. (1989). A continuity theory of normal aging. *The Gerontologist, 29 (2),* 183-190. doi: https://doi.org/10.1093/geront/29.2.183.

Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P.B. Baltes & M.M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1–34). New York, USA: Cambridge University Press.

Bennett-Levy J., Powell G. E. (1980) The subjective memory questionnaire (SMQ): an investigation into the self-reporting of “real-life” memory skills. *British Journal of Social & Clinical Psychology*, 19, 177–188.

Caprara, M.G. (2005). Envejecimiento con éxito: valoración de un programa [PhD Thesis], Universidad Autónoma Madrid.

Caprara, M.G., Fernández-Ballesteros, R. & Alessandri, G. (2015). Promoting aging well: evaluation of Vital-Aging-Multimedia Program in Madrid, Spain. *Health Promotion International,* 31 (3), 515 - 522. doi: https://doi.org/10.1093/heapro/dav014.

Consejo Nacional de Población CONAPO (2011). *Diagnóstico sociodemográfico del envejecimiento en México. Serie de documentos técnicos.* México: CONAPO.

Diaz-Veiga P. (1987). Evaluación del apoyo social. In: Fernandez-Ballesteros R, editor. *El Ambiente: Análisis Psicológico* (125–149). Madrid: Pirámide.

Díez-Nicolás J. (1996). *Los Mayores en la Comunidad de Madrid*. España: Obra Social Caja de Madrid.

Fernández-Ballesteros, R. (2002a). *Vivir con Vitalidad* (Colección de 5 textos). Madrid: Pirámide.

Fernández-Ballesteros, R. (2002b). Envejecimiento satisfactorio. In J. M. MartínezLage, (Ed*.), Corazón y cerebro, ecuación crucial de envejecimiento*. Madrid, España: Pfeizer.

Fernández-Ballesteros, R. (2005). Evaluation of “Vital Aging-M”: a psychological program for promoting optimal aging. *European Psychologist,* 10 (2), 146 – 156.

Fernández-Ballesteros, R. (en prensa). Active versus Healthy aging: a step backwards? *Journal of Gerontology & Geatric Medicine.*

Fernández-Ballesteros, R., Caprara, M.G. & García, L.F. (2004). “Vivir con Vitalidad-M: un programa europeo multimedia. *Psychosocial Intervention,* 13 (1), 63-84.

Fernández-Ballesteros, R., Caprara, M.G., Iñiguez, J. & García, L.F. (2005a). Vital Aging-M: an European multimedia programme. *Psychology in Spain,* 9 (1), 1 - 12.

Fernández-Ballesteros, R., Caprara, M.G., Iñiguez, J., García, L.F. (2005b). Promocion del envejecimiento activo: Efectos del programa Vivir con Vitalidad. *Revista Española de Geriatría y Gerontología.* 40 (2), 92 – 102.

Fernández-Ballesteros, R., Arias Merino, E. D., Santacreu, M., Mendoza Ruvalcaba, N.M. (2010). Quality of life in Mexico and Spain. In Powell (Ed.) *The Global Dynamics of Aging*. NY: Nova Science Publishers.

Fernández-Ballesteros, R. Schettini, M. A. Molina, and M. Santacreu. (2012). *Testing a Four Domain Model of Aging Well*, Autonomous University of Madrid, Madrid, Spain.

Fernández-Ballesteros R., Souto-Diez E., Diaz-Veiga P., Hernandez-López J., Izal M., Gallego A. (1987). Evaluación en Entrenamiento en Estrategias Mnésicas con Ancianos. Congreso Interamericano de Psicología, Cuba, Junio-Julio.

Fernández-Ballesteros R, Zamarrón MD, Rudinger G, et al. (2004). Assessing competence: the European survey on aging protocol (ESAP). *Gerontology*, 50 (5), 330–347.

Fries, J. F. & Crapo, L. M. (1981). *Vitality and Aging*. New York, USA: Freeman.

Havighurst, R. J. (1961). Successful aging.*The Gerontologist,* 1 (1), 8−13. doi: https://doi.org/10.1093/geront/1.1.8.

Instituto Nacional de Estadística Geografía e Informática INEGI. (2015). www.cuentame.inegi.org.mx

International Longevity Centre Brazil (2015). Active aging: A policy framework in response to the longevity revolution. Rio de Janeiro: ILC-BR.

Mendoza Ruvalcaba, N.M & Fernández Ballesteros, R. (2016). Effectiveness of the Vital Aging program to promote active aging in Mexican older adults. *Clinical Interventions in Aging,* 11, 1631-1644. doi: 10.2147/CIA.S102930.

Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist,* 37 (4), 433–440. doi: https://doi.org/10.1093/geront/37.4.433.

Rowe, J. W., & Kahn, R. L. (1998). *Successful aging*. New York, USA: Pantheon.

Ryff, C.D. (1982). Successful Aging: A Developmental Approach.*TheGerontologist,* 22 (2), 209–214.

Ryff, C. D. (1989). Beyond Ponce de Leon and lifesatisfaction: New directions in successful aging. *International Journal of Behavioral Development*, 12 (1), 35–55.

United Nations. (2015). *World Population Ageing*. NY: United Nations.

Walker, A. (2002). A strategy for active ageing. *International Social Security Review.* 55, 121–139.

Watson D., Clark L. A., Tellegen A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.

Wechsler D. (1997). *Wechsler Adult Intelligence Scale*. Cuauhtémoc, México: Manual Moderno.

World Health Organization (2002). Active aging. A policy framework. Geneva: WHO.

World Health Organization (2016). Global strategy and action plan on aging and health (2016 – 2020). Geneva: WHO.